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ON THE

MENTAL ILLUMINATION

AND

MORAL IMPROVEMENT

GLASGOW:
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OLIVER & BOYD, W. WHYTE & CO. AND W. OLIPHANT, EDINBURGH;
W. F. WAKEMAN, AND WM. CURRY, JUN. & CO. DUBLIN;
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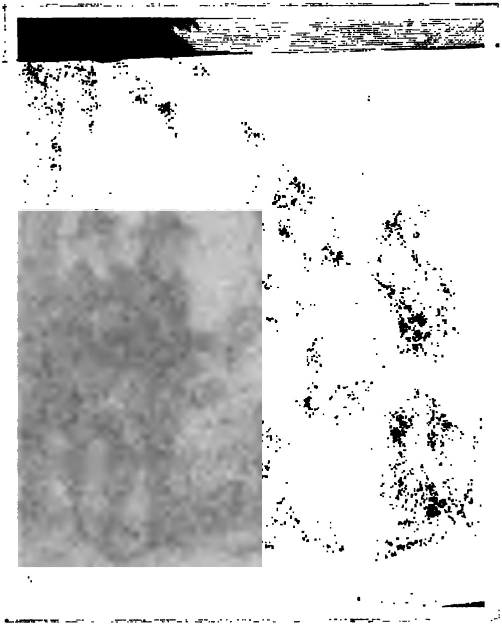
M.DCCC.XXXV.



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ON THE

MENTAL ILLUMINATION AND MORAL IMPROVEMENT OF MANKIND;

OR,

AN INQUIRY INTO THE MEANS BY WHICH A GENERAL DIFFUSION OF KNOWLEDGE AND MORAL PRINCIPLE MAY BE PROMOTED.

ILLUSTRATED WITH ENGRAVINGS.

BY

THOMAS DICK, LL. D.

AUTHOR OF "THE CHRISTIAN PHILOSOPHER," "PHILOSOPHY OF RELIGION," "PHILOSOPHY OF A FUTURE STATE," "IMPROVEMENT OF SOCIETY BY THE DIFFUSION OF KNOWLEDGE," &c.

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WHITTAKER, TREACHER, & ARNOT, HAMILTON, ADAMS, & CO.
AND SIMPKIN & MARSHALL, LONDON.

M.DCCC.XXXV.

14 P

Printed by W. Collins & Co.
Glasgow.

PREFACE.

The train of thought which runs through the following Work has been familiar to the Author's mind for upwards of twenty-six years. Nearly twenty years ago, he intended to address the public on this subject; but he is now convinced that, at that period, the attempt would have been premature, and consequently unsuccessful. He took several opportunities, however, of suggesting a variety of hints on the necessity of new-modelling and improving the system of education—particularly in the London "Monthly Magazine," the "Edinburgh Christian Instructor," the "Christian Recorder," the "Perth Courier," and several other publications, as well as in several parts of his former Volumes.—Of late years the attention of the public has been directed to this subject more than at any former period, and even the British Legislature has been constrained to take into consideration the means by which the benefits of education may be more extensively enjoyed. It is therefore to be hoped, that the subject will now undergo a deliberate and unbiassed consideration, corresponding to its interest and importance.

In endeavouring to establish a new system of education—although every requisite improvement could not, in the first instance, be effected,—yet nothing short of a comprehensive and efficient system should be the model after which we ought to copy, and to which all our arrangements should gradually approximate. To attempt *merely to extend* the present, in many respects inefficient and limited system, without adopting those improvements which experience and the progress of society have rendered necessary, would be only to postpone to an indefinite period what *must* ultimately be established, if society is expected to go on in its progress towards perfection.

In the following Volume the Author has exhibited a brief outline of the whole series of instructions requisite for man, considered as an intelligent and moral agent destined to immortality—from the earliest dawn of reason to the period of manhood. But it is merely an *outline;* for the subject, considered in all its bearings, is the most *extensive* and interesting that can occupy the attention of mankind. Should the present Volume, however, meet with general approbation, some more specific details in reference to the subjects here discussed, and to other topics connected with the improvement of society, may afterwards be presented to the public.

Several excellent works have lately been published on the subject of education, some of them recognising the leading principles which are here illustrated. But the Author has, in every instance, prosecuted his own train of thought, without interfering with the sentiments or language of others, unless where *it is acknowledged.* Some of the works alluded to he has not had it in his power to peruse; and the same current of thought will sometimes occur to different writers on the same subject.—The greater part of this Work was composed before the Author had an opportunity of perusing the excellent treatise of Mr. Simpson, entitled, " Necessity of Popular Education"—a work which abounds with liberal and enlightened views, and which recognises the same general principles which are here illustrated. But the two works do not materially interfere; and the one may be regarded as a supplement or sequel to the other, both having a bearing on the same grand object.

It was originally intended to offer a few remarks on classical learning, and on the system of education which prevails in our colleges and universities, but the size to which the volume has swelled has rendered it expedient to postpone them to a future opportunity. For the same reason, the " Miscellaneous Hints in reference to the Improvement of Society," and the remarks on " Mechanics' Institutions," have been much abridged, and various topics omitted which were intended to be particularly illustrated.

The Author intends proceeding with his promised work " On the Scenery of the Heavens," as soon as his present engagements will permit.

BROUGHTY FERRY, NEAR DUNDEE,
November, 1835.

CONTENTS.

INTRODUCTION.—Importance of the object proposed in the following work, and its practicability, pages 17–21. Reasons why it has never yet been accomplished, 22. Prospects of future improvement, 23.

PART I.

ON EDUCATION.

PRELIMINARY REMARKS.—Importance of education—subject too much overlooked—deficiency in the arrangements made in reference to this object—desirable that a taste for intellectual pursuits be induced—what should be the grand object of education, 24–30.

CHAPTER I.

Present state of Education in different Countries, 30.

Education during the dark ages—erection of colleges—era of the Reformation and the effects produced by it, 30–34. Education in the United States of America, 34–40,—in Silesia, Wirtemberg, Bavaria, Prussia, &c. 40–48,—in France, 48,—Spain, 51,—Russia 52,—Switzerland, 53.

CHAPTER II.

Strictures on the mode in which Education has generally been conducted, 55.

Different views of the object of education—absurd practices in relation to it—deficiencies in the mode of religious instruction—summary of the usual scholastic process, 55–63.—Errors and deficiencies. 1. No communication of *ideas*, 64. 2. School-books not *adapted to the capacities of* youth—specimens of their *contents*, 67—*immorality* and absurdity of some of these selections, 69. 3. *Injudicious exercise of* the memory—Shorter Catechism

&c. 74–79. 4. Absurd attempts at teaching *Grammar*—Mr. Smellie's remarks on this subject, 79.—Fastidiousness in regard to the art of *Writing*, 82. Strictures on the mode of teaching Arithmetic, 84.—Various circumstances which render education disagreeable to the young,—want of ample accommodation—long confinement in school—undue severity—hurrying children from one book to another—attempts to teach several branches at one time, &c. 87–95. Glaring deficiencies in the present practice—attributable to the *system* more than to the teachers, 95–99.—Miscellaneous remarks, 100.

CHAPTER III.

Hints in reference to a comprehensive and improved system of Education, 104.

General view of what an enlightened education should embrace, 104. Defects in our treatises on this subject, 106—Man's eternal destiny overlooked, &c. 107.

On the Education of the young during the period of INFANCY.—Gradual opening of the infant mind, 109. Manner in which its ideas are increased, 110—rapidity of its progress and acquisitions, 112.——1. *Physical* education of infants, importance of, 114.—*Food* of infants; remarks on nursing, 115. Propriety of paying attention to the effects of *air* and *light*, 117.—*Cleanliness*—anecdote of a Russian, 119–121.—*Clothing* of children, simplicity of dress—covering of the feet—directions in regard to *shoes*, illustrated by figures, 121–126.—*Sleep* and *exercise* of children, 127.—Attention requisite to direct their pronunciation, 130.——2. *Moral* instruction of infants, 131. Means of acquiring an absolute *authority* over them, 131. Plan recommended by Dr. Witherspoon, 133. Anecdote of Mr. Cecil—rule for securing authority—obstacles which prevent mothers from acquiring it—general violation of parental authority illustrated—Abbot's "Mother at Home" recommended—anecdote extracted from that work, 134–141.—Importance of attending to truth in the education of children, 142—truth and falsehood in pictorial exhibitions, 144. Illustrative anecdote from Mr. Abbot, 146. General rules on this subject, 147. Habit of incessantly finding fault with children, 147.—Children should feel the consequences of their conduct, and be guarded against *vanity* and self-conceit, 149–152. Danger of *frightening* children, illustrated by an appalling fact, 152. Necessity of *harmony* in the conduct of parents towards their children, 154.——3. *Intellectual* instruction of infants, 155. Objects, natural and artificial, which should be presented to their view—mode of conveying a knowledge of the *qualities* of objects, 158—communication of ideas by *engravings*, 160. Experiments on this subject, with a boy about two years old, 162–165. *Importance of imparting correct* ideas to the infant mind, 166.—*Maternal associations*, 167.

CHAPTER IV.

On Infant Schools, 168.

Objects of infant schools, 169.—Proper situation for such institutions, and the apparatus requisite for conducting them, 170. —Method of teaching vocal music, the alphabet, arithmetic, and the facts of Sacred history—figure of the *Arithmeticon*, 171-178. *Advantages* which would flow from the universal establishment of infant schools—increase of useful information—formation of intellectual *habits*—foundation laid of moral conduct—certainty of success when judicious moral training is attended to, 178-185. Moral effects of infant teaching, illustrated by examples, 185. Infant schools, beneficial to general society and counteractive of juvenile delinquency, 187. Social habits cultivated with safety, 189. Influence of infant schools on *Missionary* operations—infant schools in Africa, 190-194—such institutions ought to be universally established for all ranks, 194. *Qualifications* of teachers in order to render them efficient, 196. Origin and progress of infant schools, 197.

CHAPTER V.

On Schools for Young persons from the age of five or six to the age of fourteen years, 199.

Introductory remarks, 199—plan, situation, and arrangement of school-room, illustrated with cuts, 201. Idea of a seminary on a large scale, 205. School furniture—Apparatus and Museum —systematic sets of engravings, 206-210. Description of a new *Optical Diagonal Machine*, with figures, 210—suggestions to engravers on this subject, 213. Beneficial effects of such schools, 214. *School-books*, and the principles on which they ought to be constructed, 215. Specimens of subjects for elementary books, 219—objections obviated, 222. Outline of a school-book for the advanced classes, drawn up twenty-six years ago, 224—capacity of children for understanding judicious selections, 228—*third series* of school-books, comprising popular systems of the sciences, &c. 229. Historical class-books, with remarks on the manner in which history should be taught, 231—propriety of embellishing school-books with engravings—Dictionaries and portable Cyclopedias, 234.

CHAPTER VI.

Method of Teaching, and the Departments of Knowledge which should be taught in every Seminary, 236.

SECTION I. *English Reading.*—Specimen of lessons for children *and the mode in which they should be taught*, 236. Lesson the *Peacock*, with engraving, 239. Lesson on the philosophical toy termed the *Sagacious Swan*, with remarks, 240. Lesson for the advanced classes—description of volcanoes, with engravings, 243. Questions on the lesson, 246. Manner in which such questions should be formed and arranged, 248. Sets of miscellaneous questions, 249. Lessons on objects, 250–253.——Section II. *Writing and Composition.*—Mr. Buchanan's plan for teaching writing on slates, (with a cut,) 253. Professor Jacotot's plan, 255. Specimens of sentiments and statements of facts for copy lines, 256. Mode of training the young in the art of composition, 258–261.——Section III. *Drawing.*—Mode of procedure in learning this art, 261. Fancy landscapes, &c. should be discarded; drawing from the objects of nature and art, 262. Utility of this accomplishment, 263.——Section IV. *Arithmetic.*—Mode of conveying ideas of numbers; the relative value of *money;* the measures of *length* and *capacity*, of time, and the divisions of the *circle*, (with figures,) 265–272. Sensible illustration of arithmetical operations, (with cuts,) 273–277. Illustration of the value of fractions, 278. Miscellaneous hints, 279.——Section V. *Grammar.*—Absurdities in relation to this subject; Lord Kaim's opinion on our mode of teaching grammar, 281. Simple mode of communicating the elements of grammar, 285–290. Origin of language, suggests the proper method of teaching it, 291. Fundamental rules of *syntax;* complexity of some of our "English Grammars," 292–295. General remarks, 295.

Section VI. *Geography.*—Utility of this science, 296. Deficiencies in the mode of teaching it, 297. Mode of proving the *globular form* of the earth, illustrated with figures, 298—302. Mode of conveying an impressive idea of its *magnitude*, 303. Quantity of solid matter it contains; how many mountains, such as *Etna*, would be required to form a mass equal to the earth, 305. Diversified scenery on the earth's surface, quantity of water in the rivers and seas, &c. 307. *Projections and delineations* requisite for illustrating Geography, 310. Maps exhibiting the *ranges of mountains;* the proportional length and breadth of *rivers;* comparative size of countries, lakes, and seas; *Isothermal* charts; charts of geographical *Zoology;* chart of moral and religious geography, &c.; views of cities, grottos, &c.; *slate globes;* delineations of the comparative heights of mountains; wax models of particular countries, &c. 310–316. Mode of describing countries, 316. Geographical class-books, what they should contain, 317. Directions for commencing this study, 319. Characteristics of certain Geographical school-books lately published in America, 319–321.——Section VII. *Geology.*—Its practical utility, 321. Classification of the rocks and strata of the globe, illustrated with a plate, 322. Specimens for illustrating geological facts; books on Geology, 325.——Section VIII. *Astronomy.*—Object and utility of this science, 326. Mode of communicating to the young a knowledge of celestial phenomena, 327. Observations on the *motion* of the sun, and the *phases* of the moon; the principal *stars* and *constellations*; apparent motion of the celestial vault; apparent annual motion of the sun; *measures* of the celestial sphere, 329–335. Apparent motion of the planets; experiment which solves the apparent irregularities, 336. Proofs of the Earth's *diurnal* rotation, 337; of its annual revolution, 339. Additional proof exhibited by the Equatorial telescope and orrery, 341. Mode of explaining the variety of *seasons*, 343. Manner of exhibiting the phenomena of the planets, and the magnifying powers best adapted to this purpose, 345. Circumstances to be attended to in exhibiting the moon through a telescope, 347. Mode of exhibiting the solar spots, 348. Imperfect conceptions conveyed by orreries and planetariums, 348. Manner of representing the *proportional magnitudes and distances* of the planets, 349. Mode of explaining a *parallax*, illustrated by figures, 350. Moral lessons deducible from this science, 353. Books on Astronomy; Burritt's "Geography of the Heavens," &c. 355.

Section IX. *Experimental Philosophy and Chemistry.*—Departments of Experimental Philosophy, 356. *Mechanical powers*; illustrations of the *lever*, &c. 357. Experiments illustrative of *Hydrostatical* principles, (with figures,) 358–362. Simple experiments illustrative of *Pneumatical* subjects: *pressure*, *elasticity*, and *compressibility* of *air*; principle of the *diving-bell*; syphons; effects of the *expansion* of air, &c. (with figures,) 362–371. Methods of cutting glass tubes and bending them for syphons, 371. *Optical* experiments, for explaining the principles of telescopes and microscopes, 372. Description of a *diagonal eye-piece*, 375. *Camera obscura*, on a large scale, 376. Phantasmagoria; solar microscope; manner of procuring animalcula, 377. How a compound microscope may be formed from a common telescopic eye-piece, 378. Experiments with *concave mirrors*, 380; illusions produced by them, 381. General remarks on philosophical apparatus, 383. Chemical subjects and apparatus; Books on Natural Philosophy and Chemistry, 384–5.—— Section X. *Mathematics.*—General remarks on the plan and order in which a knowledge of this subject should be communicated to young persons, 385–389.——Section XI. *Physiology.*—Inconsistency of omitting this department in a general course of education, 389. Evils which arise from ignorance of this subject, 391.—Distortions of the human frame caused by absurd practices, illustrated by cuts, 392.—Means by which a general knowledge of the human system might be communicated, 394.—Figure exhibiting the thorax and abdomen, 396.—Evidences of *design* in the human fabric, 397.—Practical purposes to which a knowledge of Physiology might be applied, 398.—— Section XII. *Logic, or the Art of Reasoning.* Utility of this subject, 400.—Outline of a comprehensive system of Logic, 401. —Popular Logic—examples of reasoning, with remarks, 403–409.—Subjects for exercising the reasoning powers, 409. Anecdotes of *Gassendi*, when a *boy*, and his mode of reasoning with his companions, *with an engraving*, 410.—Analysis of Gassendi's reasoning, 412.—Reasoning to prove that "*air* exists"—that "all should enjoy a moral and intellectual education"—that "men should love one another," 413.—*Sources of Error* illustrated, 416.—*Sophisms* illustrated, 420.—Particular species of false reasoning, 421.—Importance of an early exercise of the rational faculty—evils which have arisen from false reasoning, 422. —Diabolical reasoning—reasoning by physical force—by torture —by fines and imprisonments—reasoning of persecutors, of mobs, &c. Powerful influence of *Gold* in producing conviction, 424.—— SECTION XIII. *Natural Theology*—An appropriate study for the young, 426. Summary of subjects and facts connected with this study, 428. Books on Natural Theology, 430.—*Other departments of knowledge briefly noticed,* Natural History, Botany, Political economy, Vocal music, Domestic economy, 432–434.— Bodily exercises—amusements—and excursions, 434—*Female* education—illustrious females—energy of the female mind, and its influence in society, 436.—Prevailing misconceptions, 439.— Remarks on a hackneyed sentiment of Mr. Pope, 440.—Reasons for universal instruction, 443.

CHAPTER VII.

Moral and Religious Instruction, 444.

Instruction in the knowledge of the Deity, 445. Mode of illustrating the Divine perfections, exemplified in reference to the *Wisdom* and the *Immensity* of God, 446–451.—Instruction in the history of the Divine dispensations—characteristics of sacred history—religion to be taught chiefly from the Scriptures—doctrines and precepts of Christianity—propriety of a specific application of Scriptural precepts to the conduct of the young, 452–458. *Moral training* particularly exemplified, 458–464. Manner in which the young should be directed in the study of the Scriptures, 464. *Scripture class-books*, 466.

CHAPTER VIII.

Sabbath Schools.

Defects which adhere to the present system of Sabbath Schools, 469—Qualifications of Sabbath School Teachers, and the subjects with which they should be acquainted, 470.—Necessity of their being trained to their office, 473—Departments of knowledge they should study—Sacred History, Ancient Geography, Biblical Criticism, &c. 474–480. General remarks on Sabbath Schools—*practices to be avoided, &c.* 480. Books on this subject, 483.

CHAPTER IX.

Schools for Young persons from the age of fourteen to the age of twenty or upwards, 484.

Necessity of such institutions, 484. Subjects to which this class of young persons should be directed, 485. Pre-requisites to their establishment, 488.

CHAPTER X.

On the QUALIFICATIONS *of Teachers, and* SEMINARIES *for their instruction*, 489.

Deficiency in the qualifications of Teachers, 490—honourable nature of the office—necessity of training, 491. *Preceptoral Colleges*, and the subjects to be studied, 492. Examination of candidates, 495. Importance of training candidates for Teachers, 497. Infant School Teachers—Prussian Normal schools, 498–501.

CHAPTER XI.

On the PRACTICABILITY *of establishing seminaries for intellectual education*, 502.

Number of schools requisite to be established in Scotland and England, 502-506—Expense of establishing them, 506. Importance of such institutions, and the necessity for philanthropic exertions, 507. Liberality under the Jewish economy, 509. Enormous sums expended in war, 511. Pension list, 513. Contested elections, 514. Savings which might be made in personal expenditure, 515. Sums spent on spirituous liquors, 517. No want of resources—appeal to Christians, 518. Contributions of the Jews, and predictions in relation to the Christian Church, 519. Means requisite for exciting attention to this subject, 521. Limited views of education taken by statesmen, 523. Voluntary and compulsory education, 524.

CHAPTER XII.

On the UTILITY *of establishing seminaries for universal education*, 526.

I. *They would tend to the prevention of Crime.* Number of *thieves in London—trials at the* Old Bailey—erroneous views of

legislation—inefficiency of severe punishments—juvenile delinquency—deficiency of Education in England and Scotland, 526–536. Beneficial results of education—Schools, publications, &c. in Boston and New-York, 536–9. Expense of punishing crime, 540. II. Universal education would elevate the general character of man, 542. Contrast between the majority of mankind, and celestial intelligences, 543. Native dignity of man, 544—security of property dependent on education, 546. III. Universal education introductory to the Millennium, 546. Manner in which this era will be introduced, 548—when it will commence, 550. Exertions preceding the Millennium, 551. Appeal to Christians, 552. Christian generosity and heroism, 554. Story of St. Pierre, 556.—Contributions for the tabernacle and temple, 557. The Pilgrims of New England, 558.

CHAPTER XIII.

Principles on which a National system of Education should be established.

Difficulties—Brougham's "Education Bill" of 1821, 560—Liberal views in the establishment of education, 563—Parochial system, 565.—Superintendence of education, 567—Mode of religious instruction, 568. Efficiency of Scriptural instruction, 569—Harmony of sectaries in America, 570. Proposed plan of establishing education, 572.

CHAPTER XIV.

Maxims, or First Principles in Education, 573.

Ideas should precede *words*—*tasks*—exhilarating associations—principle of emulation—corporal punishments—confinement—fixing the attention, &c. 573–581.

CHAPTER XV.

Mechanics' Institutions, 581.

The Author's communications on this subject, in 1814, 582. Condensed view of them, 583. Admission of members, 584. Subjects of discussion, and mode of conducting it, 585–590. Funds of the Society, and their application, 590. Publications of the Society, 592. Correspondence with other Societies, 594. Defects in the objects of Mechanics' Institutions, as presently constituted. Suggestions for their improvement, 596–600.

PART II.

MISCELLANEOUS HINTS IN REFERENCE TO THE DIFFUSION OF KNOWLEDGE AND THE IMPROVEMENT OF SOCIETY, 601.

Introductory remarks, 601. I. Improvements in Preaching, 603. Comprehensive range of subjects, 605. Sacred Preachers, Isaiah, Paul, Messiah, &c. 607. Domestic education, a topic for preaching, 610. Illustration of Divine subjects by sensible objects, 612. Education of candidates for the ministry, 614. Subjects for public worship, and strictures on certain modes of singing, 618.—II. Union of the Christian Church, 621.—III. Scriptures illustrated by engravings—strictures on certain Scripture prints, 623.—IV. Abridgment of the hours of labour necessary to improvement—plan suggested, 626.—V. Knowledge promoted by public exhibitions, 629. Large concave mirror. Chinese lights exhibited at Paisley, &c. 631.—VI. Erection of Observatories, &c. 633.—VII. Improvement of towns and villages, 634. Wretched state of some of our cities—narrow streets—evils of great cities—hints suggested in relation to improvements in towns and villages, 638–641. *Plan* of a small town, with description, 642.—VIII. Itinerating Libraries—their origin, plan, and effects, 643.—IX. Delineations and inscriptions on articles of furniture, 646.—X. Changes requisite in certain laws, regulations and customs, 648.—Taxes on knowledge—postages—position of the names of ships—perquisites of waiters, postilions, &c.—*hissing* in public meetings—Defects of our civil and criminal code, 648–652.—XI. Friendly intercourse between nations—Excise restrictions—Anecdote of Mr. Davidson, 652.—XII. Intellectual and religious improvement of *Seamen*—Number of, in the British service, 655.—XIII. Formation of societies for promoting improvements, 657.—XIV. Counteraction of *Avarice*, 658—Its irrationality and degrading tendency, 659—*Recapitulation and Conclusion*, 661. Prospects of improvements in future ages—Preludes of a more auspicious and enlightened era—Means by which its approach may be accelerated, 662–669.

APPENDIX, 670. Insanity from excessive study.

LIST OF ENGRAVINGS.

PAGE
Simple dress of a little girl,.. 123
Figures of the true shape of the foot, and of shoes,........... 126
Arithmeticon,.. 175
Plan and accommodations of a village school,.................. 203
Elevation of do. 204
Two figures representing the new optical machine,........... 212
The peacock,... 239
Interior of the crater of Vesuvius, ... 244
Vesuvius and Naples,.. ib.
Mode of teaching writing,... 254
Figures illustrating notation,.. 267
Seven figures illustrative of weights and measures,............ 270
Nine do. illustrating square measure,...................... 274, 275
Figures illustrative of evolution,............................. 276, 277
Six do. illustrating fractions,... 278
Figure illustrative of the earth's rotundity,....................... 299
Do. to illustrate the roundness of the earth from north to south,...... 300
Plate illustrative of geology,.. 324
Figure for explaining a parallax,.................................... 351
Quadrant of the heavens for illustrating do. 352
Hydrostatical figures:—
  Fig. 1. For showing the level of water,.......................... 359
  — 2. Hydrostatical paradox, ... 360
  — 3. Jets and fountains,.. ib.
  — 4. Velocities of spouts of water,................................ 361
Figures illustrating *Pneumatics*:—
  Fig. 1. Explaining the diving bell, ... 366
  — 2. The pressure of the atmosphere,............................ 367
  — 3. Lateral pressure of do.. ib.
  — 4. Mode of conveying water over a rising ground,.... 368
  — 5. Do. from one hill to another,................................. 369
  — 6. Effects of the expansion of air,............................. 370
Optical figures:—
  Fig. 1. Principle of the phantasmagoria, &c.................. 372
  — 2. Diagonal eye-piece,.. 375
  — 3. Camera obscura, on a large scale,........................ 376
Figures connected with *Physiology*:—
  Fig. 1. and 2. Outline and skeleton of the Venus de Medicis, 393
  — 3. and 4. Do. of a modern fashionable lady,............ ib.
  — 5. Contents of the Thorax and Abdomen,................ 396
Figures illustrative of reasoning,.................................... 404
Gassendi demonstrating the motion of the clouds,............ 411
Concave speculum used as a telescope,........................ 631
Plan of a small town, &c... 642

ON THE
MENTAL ILLUMINATION
AND
MORAL IMPROVEMENT OF MANKIND.

INTRODUCTION.

Before we attempt to accomplish any great and extensive enterprise, it is requisite to ascertain, in the first place, whether the object we propose be attainable, and, in the next place, whether, if attained, it would be productive of beneficent effects. If these points are not ascertained, previous to our engaging in any undertaking, we may exert our intellectual faculties, and active powers, and spend our time, our wealth, and our labour, to no purpose, and in the end meet with nothing but disappointed expectations. The history of the world, and even the annals of science, would furnish hundreds of facts to corroborate this position. The object of the Alchemists was to transmute earthy substances and the baser metals into gold, and, by the fortunate labour of some happy day, when the stars were propitious, to realize vast treasures of wealth, to enable them to live in splendour and opulence during the remaining period of their lives. In this visionary pursuit, which, for several centuries, occupied the attention of princes, statesmen, ecclesiastics, physicians, and experimenters of various descriptions, thousands of fortunes were irretrievably wasted, and the dupes of this fallacious science kept in perpetual anxiety, and amused with vain and unfounded expectations. Even although such schemes had been practicable—which experience proves they are not—it would not be difficult to show, that, had they been successful, they would have produced more misery than happiness among mankind. The study of the heavens, with the view of foretelling future events, and the destinies of men, from the different aspects of the planets and the signs of the Zodiac, was another scheme which, for many ages, absorbed the attention of kings, legislators, popes, cardinals, and even men of science, as well as that of the illiterate vulgar,—and, in numerous instances, no public affair of any importance was undertaken, without first consulting the stars. This fallacious art has likewise been proved impracticable, and inconsistent with the peace and happiness of mankind. The researches which were long made after the *panacea*, or universal remedy for all disorders—the search for an universal menstruum and ferment—the search for a medicine which will confer immortality even in this world—the attempts to discover mines by means of divining-rods—and to cure palsies, inflammations, obstructions, and other disorders, by animal magnetism and metallic tractors—and, above all, the attempt to conduct mankind to happiness by discarding the idea of a Divine Being and every species of religion from the plans proposed —with hundreds of similar schemes,—may be regarded nearly in the same light as the foolish arts of astrologers and alchemists, and could easily be shown to be equally unprofitable and vain.

In endeavouring to promote a general diffusion of knowledge among the various ranks of society, it becomes us likewise to inquire, whether the attempt would be accompanied with such beneficial effects as to warrant the labour and expense which must necessarily attend such an enterprise—and, whether any insurmountable difficulties stand in the way of its accomplishment. There are not wanting, even amidst the light of science which is now shining around us, many individuals in the higher classes of society who are bold enough to insinuate, that an increase of knowledge would be injurious to the lower ranks of the community—that its accomplishment is both undesirable and impracticable—that the moral world will proceed onward as it has hitherto done—that there is no possibility of meliorating the condition of the great mass of mankind,—and that it is altogether Utopian to attempt to direct the moral and intellectual energies of the human race into any other channel than that in which they have hitherto been accustomed to flow. Such insinuations evidently flow from a spirit of misanthropy, and are intended, if possible, to fix the *moral* world in a quiescent state, as the *material* world was supposed to be in former times, and to damp every exertion that is now making to promote the improvement and the happiness of our species. They are likewise inconsistent with the dictates of Divine Revelation, which plainly declare that "*the knowledge of* Jehovah shall cover the *earth, as the waters cover the* channels of the seas," and that "all shall know him, from the least to the greatest."

In a work lately published, I have endeavoured to illustrate, at considerable length, some of *the advantages which would result from a general diffusion of knowledge*, which, I presume, will tend to substantiate the position, that an increase of knowledge among all ranks would be productive of an increase of enjoyment. If a more extensive diffusion of knowledge would have a tendency to dissipate those superstitious notions and false alarms which have so long enslaved the minds of men—to prevent numerous diseases and fatal accidents—to accelerate the improvement of the physical sciences—to increase the pleasures and enjoyments of mankind—to promote the progress of the liberal and mechanical arts—to administer to the comforts of general society—to prepare the way for new inventions and discoveries—to expand our views of the attributes and moral government of the Deity—to advance the interests of morality—to prepare the mind for the pleasures and employments of the future world—to promote a more extensive acquaintance with the evidences, facts, and doctrines, of Revelation—to prepare the way for the establishment of peace and harmony among the nations, and to promote the union and the extension of the Christian church;—if such positions can be fairly proved, every philanthropist and every rational and well-directed mind will readily admit, that a more general cultivation of the human intellect, and a more extensive diffusion of rational information, are highly *desirable, and* would be productive of the most auspi*cious and beneficial* results, in reference both to the *present interests* and the future prospects of mankind.

With regard to the *practicability* of this object, no rational doubt can be entertained, if the moral machinery requisite for its accomplishment were once thoroughly set in motion. *Whatever Man has hitherto achieved, Man may still accomplish.* If minds, once feeble and benighted, and ignorant as the wild ass's colt, have, by proper training, been raised near the highest pitch of moral and intellectual attainments, other minds, by similar training, may be elevated to the same degree of perfection. If nations, once rude and ignorant, as the Britons formerly were, have been raised to a state of civilization and refinement, and excited to cultivate the arts and sciences, the same means by which this object was accomplished may still be employed in other cases to produce the same effect. If several portions, however small, of any civilized community, have been brought to a high state of intellectual improvement, it is evident, that the greater part, if not the whole, may be advanced into a similar state. It only requires that the means of instruction be simplified and *extended*, and brought within the reach of every one whose faculties are capable of cultivation. That this object has never yet been effected, is not owing to its impracticability, or to any insuperable obstacles which lie in the way of its accomplishment; but because the attention of mankind has never yet been thoroughly directed to it; and because the means requisite for promoting it have never been employed on a scale proportionate to the extent and magnitude of the enterprise. The influential classes of society, in every country, have been more absorbed in the pursuits of *avarice, ambition*, war, devastation, and sensual gratifications, than in meliorating the physical and moral condition of their species. The tenth part of the treasures which have been wasted in the prosecution of such mad and immoral pursuits, had it been properly directed, would have been more than sufficient to have brought the means of instruction within the reach of every individual of the human race, and to have transformed the barren wastes of every country into the appearance of a terrestrial paradise. There is no Government under heaven, so far as we are acquainted, (if Prussia and the United States of America be not excepted,) where the instruction of the great mass of the people forms a prominent and specific object in its administration. On the contrary, in several instances, even within the limits of Europe, it is well known, that the intellectual instruction of the lower orders is prohibited by a law.* Even in Great Britain, where the light of science shines with peculiar effulgence, the exertions of philanthropists have been damped in their attempts to diffuse knowledge among the people; heavy *taxes* have been imposed on the means of its diffusion; men of knowledge have been persecuted and neglected, while men devoted to war and bloodshed have been loaded with wealth, and exalted to the highest stations of dignity and honour; no national scheme, supported by the state, has ever yet been devised for its universal propagation among all ranks, and no sums set apart for this purpose, while the treasures of the nation have been wasted in extravagance, and, in too many instances, devoted to the support of vice, tyranny, and intolerance.

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* For example,—A royal Sardinian Edict, published in 1825, enjoins, " that henceforth no person shall learn to read or write who cannot prove the possession of property above the value of 1500 livres," or about £62 10s. sterling. And it is well known, that the greater part of the lower classes in Russia, Austria, and Poland, are, from their situation, debarred from the benefits of *instruction.*

But we trust that the breath of a new spirit is now beginning to animate the councils of the nation and the great body of the people;—and when the means within our power of extending the blessings of knowledge shall be employed with energy and judgment, we may expect, ere long, to behold a generation rising up, in intelligence and moral action, superior to all the generations that have gone before it—improving the soil, adorning the landscape, promoting the progress of the useful arts, enlarging the boundaries of science, diffusing the blessings of Christianity over the globe, giving an impulse to every philanthropic movement, counteracting the spirit of war, ambition, and licentiousness, cultivating peace and friendly correspondence with surrounding nations, and forming an impregnable bulwark around every government where the throne is established in truth and in righteousness.

To state and illustrate the various means by which a more extensive diffusion of knowledge may be effected, and the general improvement of society promoted, is the main object of the following pages, in which the state of education in our country, and the principles on which it ought to be conducted, shall occupy our first, and our chief attention.

PART I.

ON EDUCATION.

PRELIMINARY REMARKS.

There is, perhaps, nothing of more importance to the human race, and which has a more direct bearing on the happiness of all ranks, than the cultivation of the mental faculties, and the acquisition of substantial knowledge. Whether we consider man as a transitory inhabitant of this lower world, or as in a state of progression to another region of existence—it is of the utmost importance, that he be thoroughly acquainted with the Great Author of his existence, with the general structure of the universe in which he is placed, with the relations in which he stands to his fellow-men, and the other beings which surround him, with the duties he ought to discharge to his Creator, and to his own species, with the nature of that eternal world to which he is destined, and with that train of action and of contemplation which will prepare him for the enjoyments of a future and eternal state. All the other objects which can employ the attention of the human mind must evidently be viewed as in some degree subordinate to these. For, on the acquisition of the knowledge to which *we allude,* and the corresponding course of conduct to which it leads, depends the happiness of man, considered both as an individual, and as a member of the great family to which he belongs—his happiness both in the present life, and in the life to come.

Nothing, however, appears to have been more overlooked, in the general arrangements of society, than the selection of the most proper means by which such important ends are to be accomplished. In those nations and societies which, in their progress from barbarity, have arrived at only a half-civilized state, the acquisition of the means of subsistence, and of those comforts which promote their sensitive enjoyment, forms almost the exclusive object of pursuit; and it is not before they have arrived at a certain stage of civilization, that moral and intellectual improvement becomes an object of general attention. And, even in those nations which have advanced farthest in the path of science and of social refinement, the cultivation of the human mind and the details of education are not considered in that serious light which their importance demands. Almost every thing else is attempted to be accurately adjusted, while the moral and intellectual improvement of the mass of the community is left either to the direction of chance, or to the injudicious schemes of weak and ignorant minds. Every one who has acquired a smattering of English grammar and arithmetic, and who can write his own name, conceives that he is qualified to conduct the intellectual improvement of the young; the most illiterate and superficial pedants have intruded themselves into the office *of teachers; those* who have never had the *least experience in the* art of teaching, nor have studied its principles, have assumed the prerogative of dictating the arrangements and discipline of a school; and hence, the office of a teacher of youth, which is one of the most important and respectable in the social system, has frequently been considered as connected with the meanest talents, and with the lowest gradations in society.

Great Britain has long held a distinguished rank among the nations of Europe in the scale of science and of civilization, and on account of the numerous seminaries of instruction which have been established in every quarter of the island. Excepting Prussia, the United States of America, and the mountains and vales of Switzerland, there are few countries in which education is more generally appreciated and more widely diffused than in the Northern district of Great Britain; and the effects produced by our literary and scholastic establishments are apparent in the desire for knowledge, and the superior intelligence which characterize the different ranks of our population. When we compare ourselves in this respect with the Russian boors, the Laplanders, the Calmucs, the Cossacks, or the Tartars, or even with the inhabitants of Naples, of Spain, or of Portugal, we seem to stand on an eminence to which they can scarcely hope to approach for a lapse of ages. On the other hand, when we compare ourselves with what we ought to be, as beings possessed of rational natures, and destined to immortality, and as surrounded with the light of science and of revelation,—we shall find, that we are, as yet, but little more *than just emerging* from the gloom of moral depravity *and mental darkness.* When we consider the mass of depravity which is still hovering around us, the deplorable ignorance, the superstitious notions, the false conceptions in regard to many important truths, the evil passions, and the grovelling affections, which so generally prevail, we must acknowledge, that much, *much indeed*, remains to be accomplished, before the great body of the people be thoroughly enlightened in the knowledge of all those subjects in which they are interested, as rational, accountable, and immortal beings, and before they can be induced to give a decided preference to moral pursuits and intellectual pleasures. And, if this is the case in a nation designated civilized and enlightened, how thick must be the darkness which broods over the inhabitants of other regions of the globe, how deep the moral debasement into which they are sunk, and how many vigorous efforts must be requisite, ere they can be raised to the true dignity of moral and intellectual agents! If ever this important object is to be accomplished—which the predictions of ancient prophecy leave us little room to doubt—it is now high time that we arouse ourselves from our slumbers, and engage with increased activity and zeal in the work of reformation and of rational instruction. Let us not imagine, that the preaching of the gospel, in the dull and formal manner by which it is at present characterized, will effectuate this great object, without the use of all the efficient means of juvenile instruction we can devise. While we boast of the privileges of our favoured land, of the blessings of Divine Revelation, and of the enlightened era in which we live; and while we are endeavouring to *impart to distant nations* the blessings of science and of the Christian religion;—let us not forget, that there are thousands of the young generation around us, under the show of having obtained a good education, rising up in life, in a state of ignorance and vice, in consequence of the superficial and injudicious modes by which they have been tutored, and which prevent them from profiting by the instructions of the ministers of religion.

While the great body of mankind must necessarily be engaged in manual employments, and while it is essential to their happiness, as well as to their bodily subsistence, that a portion of their time be thus employed,—it would be a highly desirable object to induce upon their minds a taste for intellectual pursuits, and for those pure enjoyments which flow from a contemplation of the works and providence of the Creator, and of those moral laws and arrangements which he has ordained for promoting the social order and the eternal happiness of mankind, in which those hours not devoted to worldly business might be occasionally employed. As man is a being compounded of a corporeal organized structure, and a system of intellectual powers, it evidently appears to have been the intention of the Creator, that he should be frequently employed both in *action* and in *contemplation*. But when his physical powers only are set in motion, and the principal object of his activity is to supply the wants of his animal frame, he can be considered as little superior to the lower orders of animated existence, and must, in a great measure, frustrate the end of his Creator in bestowing upon him the faculties of his rational nature.

In order to raise mankind from the state of mental darkness and moral degradation into which they have fallen, it is essentially requisite, that the utmost care be bestowed on the proper direction of the youthful mind, in its *first* excursions in the physical and moral world; for when it has proceeded a certain length, amidst the mists of ignorance and the devious ways of vice, it is extremely difficult, if not impossible, to recall it from its wanderings to the path of wisdom and felicity. Instructions, not merely in reference to sounds and accents, and accurate pronunciation, but also in relation to important facts, and the various properties and relations of objects around them, must be communicated at an early age; and not merely the *names*, but the *ideas*, of the most interesting objects in the physical and intellectual world, must be conveyed by a succession of well-defined mental imagery, and sensible illustrations, so as to arrest and impress the juvenile mind, and excite its energies and affections in the pursuit of knowledge and virtue. Without an attention to this important object, the business of elementary instruction appears to regard man rather as a mere machine than as a rational and immortal being, and seems to be little short of an insult offered to the human understanding. The ultimate object of all scholastic instruction ought undoubtedly to be, to convey to youthful minds substantial knowledge, to lead them gradually into a view of the nature and qualities of the objects with which they are surrounded, of the general appearances, motions, and machinery of external nature, of the moral relations in which they stand to the Great Author of their existence, and to one another, and of the various duties which flow from these relations,—to direct their affections, tempers, and passions, in such a channel as will tend to promote their own comfort, and the harmony of general society, and to prepare them for the nobler employments of an immortal existence. Such moral and intellectual instructions ought to go hand in hand with the acquisition of the various combinations of sounds and syllables, and with the mechanical exercises of writing and ciphering; otherwise the beneficial consequences, which should result from instruction in the common branches of education, will be few and unimportant. Whether the prevailing modes of education in this country be calculated to promote the ends now stated, will appear, when we come to investigate the range of our elementary instruction, and the circumstances connected with the manner of its communication. Before proceeding to this investigation, I shall take a rapid view of the present state of education in different civilized nations.

CHAPTER I.

Present state of Education in different Countries.

For a long period, even after the introduction of Christianity among the nations of Europe, the education of the young seems to have been in a great measure neglected. The records of history afford us no details of any particular arrangements that were made either by the church or the state for promoting this important object. During the long reign of Papal superstition and tyranny, which lasted for nearly a thousand years, the instruction of the young appears to have been entirely set aside, or, at least, to have formed no prominent object of attention. The common people grew up, from infancy to manhood, ignorant of the most important subjects, having their understandings darkened by superstition, their moral powers perverted, and their rational faculties bewildered and degraded, by an implicit submission to the foolish ceremonies and absurdities inculcated by their ecclesiastical dictators; and even many in the higher ranks of life, distinguished for their wealth and influence in society, were so untutored in the first elements of learning, that they could neither read nor write. Ignorance was one of the foundations on which the splendour and tyranny of the Romish hierarchy were built, and therefore it would have been contrary to its policy, and the schemes it had formed of universal domination, to have concerted any measures for the diffusion of knowledge and the enlightening of mankind. We read of no nation or community, during the dark ages, that devised plans for the rational and religious instruction of youth, excepting a poor, oppressed, and despised people, "of whom the world was not worthy"—the pious and intelligent, but *persecuted Waldenses.* It appears that a system of instruction prevailed among these inhabitants of the valleys of Piedmont, seven hundred years ago, more rational and efficient than has yet been established in the British Isles.

It was not till the era of the Reformation that seminaries *for the instruction* of the young began to *be organised and permanently* established. Prior to this period, indeed, colleges and universities had been founded in most of the countries of Christendom; but the instructions communicated in those seats of learning were chiefly confined to the priestly order, and to the sons of the nobility who aspired after the highest and most lucrative offices under the hierarchy of Rome. Their influence was scarcely felt by the mass of the people; and the origin of the earliest of these seminaries cannot be traced much beyond the beginning of the thirteenth century. These new establishments, however, with the academical honours they conferred on proficients in knowledge, gave a powerful impulse to the study of science, and greatly increased the number of those who devoted themselves to the pursuits of learning. It is said, that, in the year 1262, there were no less than ten thousand students in the university of Bologna, although Law was the only science taught in it at that time; and that in the year 1340, there were thirty thousand students in the university of Oxford. But the education of the middling and lower classes of society was still miserably neglected. Even in those countries which have since been distinguished for scholastic establishments, a universal apathy seems to have prevailed, in regard to the acquisition of knowledge, and of the first elements of education. In the year 1494, a few years before Luther began to assail the Romish Church, it was enacted by the Parliament of Scotland, "that all barons and substantial freeholders throughout the realm should send their children to school, from the age of six to nine *years*, and then to other seminaries, to be instructed *in the laws, that* the country might be possessed of persons properly qualified to discharge the duties of sheriffs, and other civil offices." Those who neglected to comply with the provisions of this statute, were subjected to a penalty of twenty pounds Scots. This enactment evidently implies, that even the influential classes of society, at that period, paid little attention to the education even of the male branches of their families, and, of course, that those in the lowest ranks must have been generally, if not altogether deprived of this inestimable privilege. It was only after the passing of this act, as Dr. Henry remarks, that several individuals began to be distinguished for their classical acquirements, and that learning was much more generally diffused throughout the country.

At the time of the revival of learning, soon after the Reformation, a new impulse was given to the human mind, a bold spirit of inquiry was excited in the laity, when the vices of the Romish clergy were exposed, and their impositions detected; the absurdity of many tenets and practices authorized by the church was discovered; the futility of the arguments by which illiterate monks attempted to defend them was perceived; the mystic theology of the schools was set aside, as a system equally unedifying and obscure; the study of ancient literature was revived; the attention was directed to the sacred Scriptures, as the only standard of religious truth, the legendary tales of monkish superstition were discarded, a taste for useful knowledge was induced,—and from that period, seminaries for the instruction and improvement of the juvenile mind, began to be gradually established in many of the countries of Europe;—although *they are still miserably* deficient both in point of number, and in the range of instruction which they profess to communicate.—The following is a brief view of the present state of education in various countries:—

United States of America.—Although the system of education has never yet arrived nearly at perfection, in any nation, yet the inhabitants of the United States may be considered, on the whole, as the best educated people in the world. With a degree of liberality and intelligence which reflects the highest honour on their character, they have made the most ample provision for the elementary instruction of all classes; and most of their arrangements, in reference to this object, appear to be dictated by disinterested benevolence, and by liberal and enlarged views of what is requisite to promote the moral improvement of society. In the New States, *one* square mile in every township, or one *thirty-sixth* part of all the lands, has been devoted to the support of common schools, besides seven entire townships for the endowment of larger seminaries. In the older States, grants of land have frequently been made for the same purposes; but in New England all sorts of property are assessed for the support of the primary schools, which are established in every township.—The following extract from a speech of Mr. Webster, a distinguished member of Congress, in a convention held at Massachusetts in 1821, displays the principles and practical operation of this system, and the grand design it is intended to accomplish:—"For the purpose of public instruction," said this illustrious senator, "we hold every man subject to taxation in *proportion to* his property; and we look not to the question, whether he himself have or have not children to be benefited by the education for which he pays; we regard it as a wise and liberal system of police, by which property and life, and the peace of society, are secured. We hope to excite a feeling of respectability, and a sense of character, by enlarging the capacities and increasing the sphere of intellectual enjoyment. By general instruction, we seek, so far as possible, to purify the moral atmosphere; to keep good sentiments uppermost, and to turn the strong current of feeling and opinion, as well as the censures of law, and the denunciations of religion, against immorality and crime. We hope for a security beyond the law and above the law, in the prevalence of enlightened and well-principled moral sentiment. We hope to continue and to prolong the time, when, in the villages and farm-houses of New England, there may be undisturbed sleep within unbarred doors. We do not indeed expect all men to be philosophers or statesmen; but we confidently trust, that by the diffusion of general knowledge and good and virtuous sentiments, the political fabric may be secure, as well against open violence and overthrow, as against the slow but sure undermining of licentiousness. We rejoice that every man in this community may call all property his own, so far as he has occasion for it to furnish for himself and his children the blessings of religious instruction, and the elements of knowledge. This celestial and this earthly light he is entitled to by the fundamental laws. It is every poor man's undoubted birthright —it is the great blessing which this constitution has *secured to him—it is his solace* in life—and it may well be his consolation in death, that his country stands pledged, by the faith which it has plighted to all its citizens, to protect his children from ignorance, barbarity, and vice."

These are noble sentiments and views, worthy of being adopted and reduced to practice by every government under heaven; and we trust the period is not far distant when the British senate, and every other legislative assembly in Europe, shall have their attention directed to the arrangement of *a system of universal education*, on an expansive and liberal scale, and with such generous and disinterested objects in view.

There are no States in the Union, nor perhaps in any country in the world, so amply provided with the means of instruction, as the States of New York and New England. In New York, in 1829, there were no less than 8609 common schools, affording education to 468,205 young persons, which was rather more than a *fourth* part of the entire population! and it is probable, that, since that period, the number has considerably increased. In Scotland, which is reckoned one of the best educated countries in Europe, it is found, that only one in eleven, out of the entire population, has the benefit of education. —In New England, free schools have been endowed by benefactions from different individuals,—and the funds thus bequeathed by charity, or public spirit, have not been devoured by the cormorants of a grasping oligarchy, but prudently and carefully administered.—The education given at these schools, too, is vastly superior to what is obtained at our *parish schools.* "The general plan of education at the public free schools here," says Mr. Stuart,* "is not confined to mere reading, writing, arithmetic and book-keeping, and the ancient and modern languages, but comprehends grammar, mathematics, navigation, geography, history, logic, political economy, rhetoric, moral and natural philosophy. These schools being, as stated in the printed regulations, intended to occupy the young people from the age of four to seventeen, and to form a system of education, advancing from the lowest to the highest degree of improvement which can be derived from any literary seminaries inferior to colleges and universities, and to afford a practical and theoretical acquaintance with the various branches of useful education. There are at present in Boston, 68 free schools, besides 23 Sabbath schools, in all of which the poorest inhabitant of Boston may have his children educated, according to the system of education now specified, from the age of four to seventeen, without any expense whatever. The children of both sexes are freely admitted. The funds of those schools are derived from funds and bequests from individuals, and grants from the legislature and corporations; and enable the trustees, consisting of twelve citizens elected by the inhabitants of each of the twelve wards of the city, with the mayor and eight aldermen, to give the teachers' salaries, varying from 2500 to 800 dollars a-year. The assistant teachers have 600 dollars. The trustees elect their teachers, and vote their salaries yearly, and *no preference is given on any principles but those of merit or skill.* No expense whatever is incurred in these schools for the children, except in books. The richer classes in Boston formerly very generally patronized teachers of private schools, who were paid in the usual way; but they now find that the best teachers are at the head of the public schools, and in most cases prefer them—the children of the highest and lowest rank enjoying the privilege, altogether invaluable in a free state, of being educated together.

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* "*Three Years' Residence* in North America."

"In the adjoining State of Connecticut, it has been ascertained by actual reports, that *one-third* of the population of about 275,000, attend the free schools. The result of the recent inquiry into the state of education in the State of New York, which adjoins New England, and is almost equal to it in population, is very much, though not entirely the same.—It is proved by actual reports, that 499,434 children, out of a population of 1,900,000, were at the same time attending the schools, that is, a *fourth* part of the whole population. Although the public funds of New York State are great, these schools are not entirely free; but free to all who apply for immunity from payment. The amount of the money paid to the teachers, by private persons, does not, however, amount to one-third of the whole annual expense, which is somewhat less than a million of dollars."

Besides the seminaries appropriated to the instruction of the mass of the population, the United States contain no less than *seventy* colleges, in which the ancient and modern languages, the mathematical sciences, Natural Philosophy, Chemistry, Logic, Christian Theology, and other branches, are regu*larly taught*, as in the European universities; but with more attention to the *moral and religious* conduct of the students. About the time of the American Revolution, in 1775, there were 10 colleges; from 1775 to 1800, 13 were established; from 1800 to 1814, 11 were added; and from 1814 to 1834, no less than 36 colleges have been established. In these colleges, 5500 students are prosecuting their education, in the different departments of Literature and Science.—The *American Education Society* is just now educating 912 young men for the ministry; the *Presbyterian Education Society* has 612 students under its charge; the *Northern Baptist Society* has 250. The whole number at present educated by these Societies, including the Episcopalian, German, Lutheran, &c. is 2000. These are exclusive of a very large number who are paying the expenses of their own education, and who are equally pious and promising.

It is to the numerous establishments of education—the extensive range of instruction they embrace—the opportunities of instruction afforded to the lowest classes of the community—the superior degree of comfort they enjoy—and to the elevation of character promoted by their free institutions, that we are to attribute the non-existence, in most parts of the United States, of what is usually termed a mob or rabble, and that depredations are less frequent, and property more secure, than in other countries. In the *Southern* States, indeed, the means of education are not so extensive, nor has society advanced to such a state of moral and mental improvement, as *in the* Northern. The reason is *obvious. These States, with a most glaring* incon-

sistency, still continue the abettors of *slavery*, in its most disgusting forms. More than one-half of their population consists of slaves, who are deemed unworthy of enjoying the blessings even of a common education. A spirit of haughtiness and domination prevails among the influential classes, barbarous amusements among the lower; and Christian morals, the finer feelings of humanity, and intellectual acquisitions, are too frequently disregarded.

Silesia.—This country, in consequence of the exertions of Frederick the Great, is now richly furnished with scholastic establishments. Prior to 1765, Silesia, like the rest of Europe, was but wretchedly provided either with schools or with teachers. In the small towns and villages, the schoolmasters were so poorly paid, that they could not subsist without practising some other trade besides their occupation as instructors; and they usually united the character of the village fiddler with that of the village schoolmaster. Frederick issued an ordinance, that a school should be kept in every village, and that a competent subsistence should be provided for the schoolmaster by the joint contribution of the lord of the village and the tenants. Felbiger, an Augustine monk, belonging to a convent at Sagan, travelled to different countries to obtain an acquaintance with the best modes of teaching. After spending some years at Berlin, to obtain a perfect knowledge of the best method of instruction in the schools of that city, he returned to Sagan, and made the convent to which he belonged a seminary for candidates as schoolmasters. Pattern schools were established at *Breslaw*, *Glatz*, and other places, on the principles he had adopted, and all candidates for the office of teachers, were obliged to attend these seminaries, and to practise the method in which they were there instructed. The clergy, no less than the teachers, were required to go through this process, because the superintendence of the teachers was to be committed to them. After these preparatory matters had been carried into effect, an ordinance was published in the year 1765, prescribing the mode of teaching, and the manner in which the clergy should superintend the system. The teachers were directed to give plain instruction, and upon subjects applicable to the ordinary concerns of life; not merely to load the memory of their scholars with words, but to make things intelligible to their understanding, to habituate them to the use of their own reason, by explaining every object of their lesson, so that the children themselves may be able to explain it, upon examination. The school tax must be paid by the lord and tenants, without distinction of religions. The boys must all be sent to school from their sixth to their thirteenth year, whether the parents are able to pay the school tax or not. For the poor the school money must be raised by collections. Every parent or guardian who neglects to send his child or pupil to school, without sufficient cause, is obliged to pay a double tax, for which the guardians shall have no allowance. Every curate must examine, weekly, the children of the school of his parish. A general examination must be held annually, by the deans of the districts, of the schools within their respective precincts; *and a report* of the condition of *the schools, the talents and* attention of the schoolmasters, the state of the buildings, and the attendance of the children, made to the office of the vicar-general, who is bound to transmit all these reports to the royal domain offices, from which orders are issued to supply the deficiencies of the schools, and to correct any abuses that may be found to prevail. If one school suffice for more than one village, neither of them must be more than half a German mile, or two and one-fourth British miles, distant from it in the flat country, nor more than half that distance in the mountainous parts.

This system had at first many difficulties to struggle with, from the indolence of the Catholic clergy, and their consequent aversion to the new and troublesome duty imposed upon them. Their zeal was alarmed at the danger arising from this diffusion of light to the stability of their church. They considered the spirit of innovation, and the spirit of inquiry, as equally their natural enemies; and the system still finds a certain degree of resistance from the penurious economy, and the stubborn love of darkness, which still prevail in some parts of this province. But in so far as it has been acted upon, its operation has proved a blessing to multitudes. As a proof of its extensive effects, the number of schools, in 1752, amounted only to 1552; but in 1798, their number was more than 3500; and many other facts, equally clear, attest the progressive increase of knowledge, and a desire for improvement. Before the seven years' war, there had scarcely ever been more than one periodical journal or gazette published in Silesia at one time; but in 1801, there were no less than *seventeen newspapers* and magazines, which appeared by the day, the week, the month, or the quarter; many of them upon subjects generally useful, and containing valuable information and instruction for the people. At the former period, there were but *three* booksellers, and all these at Breslaw; but in 1801, there were six in that capital, and seven dispersed in the other cities. The number of printing presses, and of bookbinders, had increased in a similar proportion. Agriculture and manufactures, too, have been vastly improved and extended; so that Silesia is, at this moment, one of the most flourishing districts of the Continent. The habits of the people have been signally improved; and they have become among the most intelligent, orderly, and industrious, in Europe.*

Wirtemberg, *Baden*, *Bavaria*, *&c.*—In Wirtemberg, during the last thirty years, the system of education has been very greatly extended and improved. A public school is established in every parish, and, in some instances, in every hamlet. The master receives, as in Scotland, a fixed salary from the parish, exclusive of a small fee from the pupils, varying according to their age, and the subjects in which they are instructed. The fees are fixed by government, and are every where the same. Exclusive of the salaries and fees, the masters are furnished with a house, a garden, and, in most instances, a few acres of ground, corresponding to the *glebes* of the Scottish clergy. The law requires that the children should be instructed in reading, writing, and arithmetic; and it is specially enacted, that they shall be instructed in the principles of German grammar and composition. The books used in the schools of Wirtemberg and Baden, are very superior to those used in similar establishments in this country. They consist of geographical, biographical, and historical works, and elementary treatises on moral science, natural history, and the principles and practice of the most important and useful arts. In all the large schools, the boys and girls are kept separate. The girls, in addition to reading, writing, and arithmetic, are taught all sorts of needlework, the knitting of stockings, the making of clothes, &c.; receiving at the same time lessons in the art of cookery, the management of children, and other departments of domestic employment. The supervision of the schools is intrusted, in every parish or *commune*, to a committee, consisting of a few of the principal inhabitants; the clergy of the parish, whether Protestants or Catholics, being always *ex officio* members of the committee. This body is intrusted with the duty of inspecting the school, and is bound to see that the master performs his duty, and that the children attend. No particular system of religion is allowed to be taught in any of the schools of Wirtemberg, and most of the other Germanic States. The tuition of this important branch is left entirely to the clergy and the parents of the children, so that the sons and daughters of Catholics, Lutherans, Calvinists, Quakers, &c. frequent the schools, and live in the utmost harmony.

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* *See President Adams' Letters on Silesia*, *Quarterly Journal of Education*, *and Glasgow Geography*, vol. iii.

The greatest desire prevails among the lower classes that their children should enjoy the advantages of the excellent education provided for them;

but the government, not trusting entirely to this feeling, has enacted regulations, by which *every individual is compelled to send his children to school, from the age of six to fourteen years.* The public functionaries transmit regularly to government, once every six months, a list of the children in their respective districts, who have attained their sixth year; and they are bound to see that they are sent to school. In the event of the parents being unable to pay the school fees, a statement to that effect is prepared by the parochial authorities, and the fees are paid by the public.

In *Bavaria*, the beneficial consequences resulting from the establishment of a system of national education, have been more apparent than in any other European country. Half a century ago, the Bavarians were the most ignorant, debauched, and slovenly people, between the Gulf of Genoa and the Baltic; but, during the last thirty years, no people has ever made a more rapid advancement than they have done, in the career of knowledge and of civilization. The late and present kings of Bavaria, have not only swept away myriads of abuses, and established a representative system of government, but they have laid the only sure foundations of permanent and real improvement, in the organization of an admirable system of national education. A school has been established in every parish, to which every one is obliged to send his children, from the age of six to fourteen; Lyceums, Colleges, and Universities, have also been instituted, for the use of those who are desirous of prosecuting their studies; and every facility is afforded for the acquisition of the best instruction, at the lowest price. The following is a summary view of the principal seminaries in this country:—Three universities, seven lyceums, eighteen gymnasia, twenty-one colleges, thirty-five preparatory schools, sixteen houses of education, seven for higher branches, two boarding-schools for girls, seven normal schools, one school for foreigners, two schools of law, two veterinary schools, two schools of midwifery, and two royal schools. The public, or national schools, amount to 5394; the inspectors to 286; the teachers to 7114; and the pupils of all classes, to about 498,000;—and, since the population of Bavaria is about four millions, it follows, that not less than *one-eighth* of the entire population is at school, which is a higher proportion than what attends the schools in Scotland.

Mr. Loudon, the talented editor of the "Gardener's Magazine," who travelled over most parts of Wirtemberg, Bavaria, and Baden, in 1828, bears the most unqualified testimony to the excellence and efficiency of the system of public instruction adopted in these countries, and the beneficial effects which have resulted from its operation. "From what I have seen," says he, "of Wirtemberg, I am inclined to regard it as one of the most civilized countries in Europe. I am convinced that the great object of government is more perfectly attained here, than even in Great Britain; because, with an almost equal degree of individual liberty, there are incomparably fewer crimes, as well as far less poverty and misery. Every individual in Wirtemberg reads and thinks; and to satisfy one's self that this is the case, he has *only to enter into* conversation with the first peasant he meets; to observe the number and style of the journals that are every where circulated, and the multitude of libraries in the towns and villages. I did not meet with a single beggar in Wirtemberg, and with only one or two in Bavaria and Baden. The dress of the inhabitants of Wirtemberg, as well as those of a great part of Bavaria and Baden, appeared to me to indicate a greater degree of comfort, than I had ever observed in any other country, with the exception, perhaps, of Sweden, and the Lowlands of Scotland."

The above sketches were written two or three years ago. Since that time, M. Victor Cousin's "Report of the State of Public Instruction," has been published, and translated into English by Mrs. Austin. This report, which fills nearly 340 pages, contains a very full, but rather dry detail, of the whole machinery of education in Prussia. From this document it appears, that, in 1831, there were 22,612 schools, and 27,749 schoolmasters and mistresses—that the total number of children under fourteen years of age was 4,767,072; the number between seven and fourteen years, 2,043,030, out of which, the number of children attending school was 2,021,421, or nearly a sixth part of the whole population, which is estimated at about twelve and a half millions. It does not appear, from this report, that infant schools are established in Prussia, or any institutions for the instruction of young persons from the age of fourteen to twenty, or upwards; nor can we learn, from any thing stated in it, that an *intellectual* principle is uniformly acted upon in the details *of education. The system* presents too much of a military spirit and character, throughout all its departments, corresponding to the nature of a despotic government; and it would require a very considerable modification, before it could, with propriety, be adopted in a republic or a limited monarchy. Many *deficiencies* in the system likewise require to be supplied. Yet, notwithstanding all its defects, it has already produced a benign influence on the knowledge and moral conduct of the inhabitants of that country; and, in a short time, if Britain does not immediately bestir herself in the cause of education, the Prussian population will be among the most enlightened inhabitants of Europe.

France.—Notwithstanding the numerous scientific characters which have appeared in this country, and the discoveries and improvements they have made in the physical and mathematical sciences—the provision for public instruction, particularly in the southern departments, is very defective. The Revolution of 1789 annihilated almost every existing institution, and those for public instruction among the rest. For a period of nearly five years, a whole nation of thirty millions of people remained without any regular education. It was, indeed, enacted by a law of the 13th September, 1791, "That a system of public instruction should be organized; that the public schools should be open to every one; and that no fees should be charged for the elementary branches." But, amidst the commotions and demoralizing scenes of that period, this law, like many others, was never carried into effect; and, at this moment, France, with the exception of Spain and *Portugal, is worse* provided with the means of elementary instruction, than any other countries in Europe. In the "*Bulletin des Sciences Geographiques*," vol. xiv. for 1828, it is stated, that "in France, the number of children of an age to frequent primary schools is nearly 6,000,000. Of this number scarcely a million and a half receive instruction." Thus, without adverting to the circumstance of ten millions of adults who can neither read nor write, according to a recent calculation—there are four millions and a half of young Frenchmen, who do not receive even the first rudiments of education. The children at school, in the thirty-two departments of the north, are reckoned at 740,846; and in the fifty-four departments of the south, only 375,931, which is little more than *one-thirtieth* of the population. In Paris there are to be distinguished two populations,—the population already enlightened, which comprehends, at most, about 100,000 souls; and the population which still remains to be enlightened, which amounts to nearly 800,000. Societies and individuals at Paris and other populous towns, exerted themselves to supply so great a want; but their efforts being openly opposed by the clergy, and secretly by the late government, were not so successful as they might otherwise have been. Schools, upon the Lancasterian plan, were introduced by the government at Paris, and other large towns; but the benefits of the system were extended only to professed Catholics;—none but Catholic teachers were employed, and the Protestants were left to educate their children the best way they could. In consequence of this deficiency of instruction, ignorance *and superstition, irreligion* and immorality, prevail over a large portion of the kingdom, even amidst the light of literature and science with which they are surrounded; and a considerable period must elapse before the mental darkness can be dispelled, and the moral mischief it has produced be completely eradicated. It is to be hoped, now that the influence of the Catholic priests has been diminished, and liberal measures of policy introduced, that a more extensive system of elementary instruction will be established; and we are happy to understand that the attention of the Government of Louis Philip has been directed to this object, and that measures have been brought forward in order to its accomplishment. In the year 1831, M. V. Cousin was sent as a deputation to Prussia from the government of France to acquire a knowledge of the details and regulations connected with the Prussian system of education. Since his return, numerous schools have been established on the principles of the Prussian system, and there is now a prospect, that, in the course of a few years, an efficient system of education will be established in that country.—According to the latest statistical accounts, the number of children who are learning to read, now amounts to 2,000,000; the number of primary elementary schools is 35,007; of superior primary schools, 370; of private schools, 9092: total, 44,269. The number of boys attending these schools is, 1,175,248; and of girls, 731,773. The total expense of primary instruction is 10,162,706 francs, or about £423,446. Of this expense there is paid by the Communes, 7,693,793 fr.; by the Departments, 2,063,072 fr.; and by the State, 405,841 fr.; or about £16,910—a very paltry sum when compared with the magnitude and importance of the object.

Spain.—"In this country there are few establishments for the diffusion of the first rudiments of knowledge. The lower classes seldom learn to read or write; those above them are as seldom instructed in any thing but those two accomplishments, and the elements of arithmetic. Such as are intended for the learned professions attend a Latin school for three or four years; and since the expulsion of the Jesuits, these schools are not numerous. Some private establishments, for the instruction of the boys in Latin, were rising at the time of the French invasion, and a desire of improvement in the method of teaching was showing itself among the teachers."* When we consider that the education of youth in this country is committed chiefly to monks, we may rest satisfied, that, in general, its plan and objects are very limited and defective. Nor is the system much improved, when the student proceeds to the university. He is there taught little else but the logic and natural philosophy of Aristotle, and the theology of Thomas Aquinas. If a Spaniard, therefore, attain to any thing like true knowledge, he must either leave his country in the search, or teach himself in the best way his fancy may devise.—The same remarks, with a slight modification, will apply to the neighbouring kingdom of *Portugal*, where Papal superstition and tyranny exist in all their fulness and rigour. As the numerous swarms of priests, monks and friars, that infest this country, are almost universally ignorant, and not unfrequently vicious,—as they are bigotted in the extreme to the established religion and its childish ceremonials,—and as the general diffusion of knowledge would strike at the foundation of their ecclesiastical system,—it cannot be supposed that they will show much zeal either in making their scholars liberal and intelligent, or in enlarging and improving the general system of instruction. Several generations must elapse, and numerous and important changes be effected, before we can expect that the great body of the Spaniards and Portuguese can become enlightened and moralized.

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* *Quarterly Journal of* Education, vol. i.

Russia.—It is only of late years that the attention of the Russian government has been directed to the promotion of education throughout that extensive empire; and several ages will be requisite, before its half-civilized inhabitants be raised from the state of mental debasement in which they have been so long immersed. During the reign of the late emperor Alexander, Lancasterian schools and other seminaries were established in different parts of European Russia, and Bible societies, for distributing the Scriptures among the lower orders, were patronized by the Emperor, Prince Gallitzin, the archbishops, and other distinguished characters. It appears that in the beginning of 1830, the emperor Nicholas gave his sanction to certain regulations, providing for the establishment of primary schools in the several villages appertaining to the crown. The object of these seminaries is to diffuse useful knowledge among the peasantry, and to furnish the villages with individuals who may act as writers. Gratuitous instruction is to be afforded in these schools to youths of not less than eight years of age, in the *catechism, reading* books and written documents, writing, and the first four operations of arithmetic. The lessons are to open after their return from labour, and to continue until it be resumed; with the exception of Sundays and festivals, they are to occupy four hours a-day. Permission is, however, given to the teacher to assemble his pupils for the purpose of repeating their lessons, even whilst they are working in the fields; but this cannot take place without the consent of the villagers. The expenses of these schools are to be defrayed out of the territorial income of the villages, and the first essays are intended to be made in the governments of St. Petersburg and Pscov.

Switzerland.—This country, remarkable for the sublimity of its mountain scenery, the fertility of its vales, and the beauty of its expansive lakes,—is no less remarkable for the means of education it possesses, and the consequent intelligence and moral order of its inhabitants. In this respect, it is scarcely inferior to the best educated countries in Europe. The proportion of the inhabitants undergoing the process of instruction is greater than that of either France, England or Scotland. In the *Pays de Vaud*, this proportion amounts to *one-eighth* of the population, which is more than the average of the other countries of Europe, where systems of instruction have been established; so that the inhabitants of this district of Switzerland, have generally been considered by travellers as the most intelligent and the best educated among the European nations.

The celebrated school of *Pestalozzi* at Yverdun, in the Pays de Vaud, has been visited and celebrated *by every traveller. This* was among the first seminaries in which the intellectual system was introduced, in which the *rationale* of every subject taught is explained and illustrated, and the intellectual faculties stimulated and brought into exercise. It embraces also the plan of mutual instruction, as exemplified in the schools of Bell and Lancaster. The establishment of the School of Industry of M. Fellenberg at Hofwyl, in the Canton of Berne, has also been deservedly celebrated. The object of this seminary is to combine scholastic education with industrious habits, and a knowledge of the best manner of performing mechanical and agricultural operations. Although, at Hofwyl, the principles and practice of *Agriculture* are the chief objects of attention, yet the general principles of the institution and the mode of instruction might, in towns, be successfully applied to mechanical operations and manufacturing processes of every description. It has given a great impulse to education throughout the country, and has produced some very eminent scholars. Not only the lower classes, but pupils of the highest rank come to this seminary, from Germany, France, England, and other parts of Europe. In most of the cantons, education is a matter of state, persons of the greatest respectability are engaged in the business of instruction, and the arrangements of the system of tuition are under the immediate direction and protection of the government.

CHAPTER II.

Strictures on the mode in which Education has generally been conducted.

There are few subjects which have so frequently engaged the attention of the literary public as the instruction of the young; and yet there is no subject about which so many vague and erroneous notions generally prevail. No term in our language has been more abused and misapplied than that of *education*. By the great majority of our countrymen it is considered as consisting merely in the acquisition of pronunciation, spelling, and grammar—of writing, casting accounts, and the knowledge of languages; and these acquisitions are considered of value chiefly as they prepare the individual for engaging in certain *secular* employments, and are instrumental in procuring his subsistence. By others it has been confined to the communication of the elements of thought, and the improvement of the intellect; and, by a comparatively small number, it has been regarded chiefly as the formation of character, and the cultivation of moral habits. But, to neither of these objects is education to be *exclusively* confined. It consists of a comprehensive and harmonious combination of them all, including every mean and every mode of improvement by which intelligent beings may be trained to knowledge and virtue—qualified for acting an honourable and respectable part on the theatre of this world, and prepared for that immortal existence to which they *are destined.*

It is deeply to be regretted, that, up to the present hour, with a very few exceptions—in an age deemed liberal and *enlightened*—the system on which education has generally been conducted is repugnant to the dictates of reason, inefficient for enlightening and meliorating the human mind, and is little short of an insult offered to the understandings of the young. While almost every initiatory book has for its motto, and every teacher can readily repeat the following lines of Thomson,—

> "Delightful task! to rear the tender thought,
> *To teach the young idea how to shoot,*
> And pour the fresh instruction o'er the mind,"

the great objects which education ought to promote have been miserably neglected. A farrago of *words* has been substituted in the place of *things*; the elements of *language* have been preferred to the elements of *thought*; the *key* of knowledge has been exhibited instead of *knowledge* itself; and the youthful mind, at the termination of the common process of instruction, is almost as destitute of *ideas* as at its commencement. At that period of life when the minds of the young are beginning to expand—when they ardently thirst after novelty and variety—when they are alive to the beauties and sublimities of nature, and listen with delight to the descriptions of other countries, and the tales of other times—instead of being gratified with the exhibition of all that is interesting in the scenes of creation and the history of man—they are set down in a corner to plod over unknown characters and strange sounds—no pleasing objects are exhibited to inspire them with delight—*their memories* are burdened, and even *tortured*, while their understandings are neglected; and, after many painful efforts, intermingled with cries and tears, while the detested lash is hanging over their heads, they are enabled to repeat, like a number of puppets, their medley of grammar rules, their psalms, their hymns, their catechisms, and their speeches from the English and Roman classics, pouring out their words with a velocity like water bursting from a spout, *without a single correct idea connected with their exercises*, "understanding neither what they say, nor whereof they affirm."—Hence, it has too frequently happened, that the school-room has been viewed as a prison, their teachers as a species of tyrants, and the scholastic exercises in which they engaged, as repugnant to their natural vivacity, and subversive of their youthful pleasures. Hence they have frequently been driven to the village school, like sheep to the slaughter, and like criminals to a jail, or carried on the shoulders of their companions, amidst cries, and lamentations, and forebodings of punishment.

In seminaries of a higher order than those to which I now allude, five or six years are generally spent in learning the declension of nouns, the conjugation of verbs, and the rules of syntax, and in acquiring a smattering of the Roman classics; while, at the close of this tedious, and to the pupil, *revolting* process, he retires from the seminary to the shop, the counting-house, or the university, nearly as ignorant of the common phenomena of nature, of the sublime discoveries of modern times, of the principles of the arts and sciences, and the laws of moral action, *as if he had been born in* Patagonia, or in the centre of New Holland. If he has acquired any thing at all, which may be denominated *knowledge*, it consists chiefly in a jumble of notions about the squabbles of heathen gods and goddesses, detached fragments of Roman history, the Metamorphoses of Ovid, the fictions of Pagan mythology, and the revengeful encounters of destroying armies and ambitious despots While his mind is familiar with the absurdities and impieties of ancient superstition and idolatry, he not unfrequently quits the scene of instruction as ignorant of the character and attributes of the true God, of the doctrines of the Christian religion, and of the tempers which it inculcates, as if he had been tutored in a Pagan land.

Even in those seminaries which are devoted to the *religious* instruction of the young, the same absurd and inefficient system to which I have alluded is too frequently acted upon. Instead of exhibiting to the understandings of the young the character and perfections of the Deity, and the truths of Christianity, by familiar and popular illustrations deduced from the economy of nature, and the *facts* of revelation, a great proportion of their Sabbath-school exercises consists in repeating, with a disgusting flippancy and vociferation, their catechisms, psalms, paraphrases hymns, and Scripture passages, assigned them as *tasks*, and in listening to the crude expositions of certain abstract theological dogmas, to which they can attach no precise or well-defined notions, and which do not enter into the essence of the Christian system. In certain schools of this description, I have witnessed the attention of the children almost *exclusively directed* to the *mere repetition* of the

Shorter Catechism, and other compends of Divinity, and that, too, in a most inaccurate, irreverent, and vociferous manner, without a single attempt being made to convey any *idea* to the understanding of the nature of the truths repeated—while the catechumens seemed to be much gratified and relieved in having got their memories disburdened of the ungracious tasks imposed upon them. In other schools, where the teachers had acquired a smattering of systematic theology—after the memorial tasks were despatched—I have listened to a series of crude dissertations addressed to the young respecting the covenant of works and of grace, predestination, absolute and conditional decrees, faith, the Trinity, and similar topics, together with long-winded exhortations, occasionally intermingled with boisterous and unhallowed threats and denunciations, because the young did not yield a profound attention to such abstract speculations. Yet all this goes by the name of *religious* instruction; and, when it is found to produce little influence on the moral conduct of the young, the effect is attributed solely to the corruption of human nature, and to the withholding of the influences of Divine grace,—a sentiment which goes far to attribute to the "Only Wise God" those effects which are produced by the folly and the injudicious schemes of men.—As it is painful to exercise the memory to any extent on words unconnected with ideas, so it frequently happens, that a disrelish for religion and its services is induced, in consequence of the labour and drudgery with which they are thus associated. In these seminaries, too, the duties of Christian morality are too *frequently thrown into the shade.* Christianity is not a mere theory, but a *practical system;* for all its historical details, its doctrines and precepts, its promises and threatenings, have an ultimate reference to the regulation of the temper and affections, the direction of the conduct, and to the general renovation of the moral powers of man, in order to his preparation for a higher state of moral and intellectual excellence. And, therefore, it ought to be one of the grand objects of religious instruction to cultivate the moral powers, to direct the temper and affections, and to show, by familiar illustrations taken from the scenes of active life, how the principles of Christianity ought to operate in all the diversified circumstances and relations of society.—But, leaving this topic, in the meantime, let us attend a little more particularly to the range of instruction in our common initiatory schools.

After a knowledge of the characters of the alphabet and of the principal elementary sounds is acquired, the scholar is led through a series of dry and uninteresting lessons and spelling exercises, in which his memory and his faculty of pronunciation are solely exercised. The New Testament is next put into his hand, and, after reading a portion of it with great difficulty and awkwardness, and before he is capable of reading one sentence with ease and accuracy, he is introduced to such books as "Barrie's Collection," and "Tyro's Guide," and "Scott's Beauties of Eminent Writers," in which there is scarcely one selection interesting to a youthful mind, or level to its comprehension. But this circumstance seems to be considered by many as a matter of no importance; *for it is seldom* or never that an attempt is made to convey to the minds of youth the *ideas* contained in the lessons they read and commit to memory. During these reading exercises, the Shorter Catechism is put into their hands, in order that its vocables may be committed to memory; and that, too, at so early a period, that they find the greatest difficulty in mastering the pronunciation of the long and technical terms with which it abounds. Through this ungracious task they struggle, with the greatest reluctance, and generally, too, without annexing a single idea to any of the answers they repeat. They are soon after, perhaps before they are seven years of age, introduced to the study of English Grammar; and, after feeling much apathy and not a little disgust at this abstract science, and experiencing many days and hours of ungrateful labour, they are able to repeat a few of its rules, definitions, and declensions. Like so many parrots, they can tell us by rote, what is a verb, an adverb, or a preposition, or that "conjunctions which imply contingency require the subjunctive mood," without understanding what they say, or annexing a clear idea to any of the rules or definitions they repeat. By turning over Scott's or Fulton's Dictionary, they learn that *virtue* is a *noun*, because *n* is annexed to it—that, *to write* is a *verb*, because *v* is annexed to it—and that *from* is a *preposition*, because *pre* is annexed to it; but, beyond such reasons they seldom attempt to aspire; and after two or three years' training in such exercises, they know little more of the subject, or of the application of its rules to composition, than when they first commenced. The principal acquisition made, *is a facility* in finding out *words in a dictionary, without* any attention being in the face of all observation and experience. It prepares the mind, in some measure, for certain avocations in civil society, and for the reception of knowledge in after life, should it ever be exhibited in a more judicious and intelligent manner; and, in some instances, when combined with judicious domestic instruction, it will assist and direct the pupil, in the pursuit of knowledge and of mental enjoyments. But, considered by itself, as a system of culture for rational and immortal beings, in order to the development of their moral and intellectual powers, and as a preparation for a higher state of existence, it is *miserably deficient*, both in the means which are employed, in the range of instruction, and in the objects which it is calculated to accomplish.—To illustrate this position is the object of the following remarks.

I. In the first place, one glaring defect which runs through the whole system of initiatory instruction (except in very rare instances) is, *that no attempt is made to convey ideas to the youthful mind, along with the elementary sounds of language and the art of pronunciation.* Provided children can *mouth* the words, and vociferate with alacrity the different sentences contained in their lessons, it appears to be a matter of little importance in the eyes either of teachers or of parents, whether or not they appreciate the meaning of any one portion of the sentiments they read. Although the great object of education is "to teach the young idea how to shoot," it is almost the only object which is thrown into the shade; and those scholastic exercises which *are only the means* of education, are almost exclusively attended to as if they were the *end.* The young are thus treated as if they were only so many puppets, placed on a stage to exhibit a series of mechanical movements, and as if they were not possessed of the smallest portion of intellect, and were entirely destitute of affections and passions. Yet, it is undeniable, from fact, that children, at a very early age, are capable of receiving a variety of ideas into their minds, and of exercising their reasoning powers respecting them. Present an engraved landscape to a boy of four or five years of age, especially as exhibited through the *Optical Diagonal Machine,* where he will see every object, in its true perspective as it appears in nature—he will at once recognise and describe, in his own way, the houses, the streets, the men, the women, the roads and carriages, and the land and water of which it is composed, and express his opinion respecting them. Present well-executed engravings of a horse, a cow, a lion, an elephant, or a monkey, and he will soon learn to distinguish the one from the other, and will feel delighted with every new exhibition that is made to him of the objects of nature or of art. And, therefore, if sensible objects, level to his capacity and range of thought, and with which he is in some measure acquainted, were uniformly exhibited in his first excursions in the path of learning, his progress in knowledge would nearly correspond to his advancement in the art of spelling and pronunciation. The absurdity of neglecting the cultivation of the understanding, in the dawn of life, and during the progress of scholastic instruction, however common it may be, is so obvious and glaring, that it scarcely requires a process of reasoning to show its irrationality, if we admit that the acquisition of knowledge ought to be one of the great ends of education. What important purpose can be gained by a number of boys and girls spending a series of years, in pronouncing, like so many parrots, a number of articulate sounds, to which they annex no corresponding ideas or impressions, and which cost them so much pain and anxiety to acquire? What is the use of the art of reading, if it be not made the medium by which knowledge and moral improvement may be communicated? And, if we neglect to teach youth to apply this mean to its proper end, while they are under regular tuition, how can we reasonably expect, that they will afterwards apply it, of their own accord, when a sufficient stimulus is wanting? By neglecting to connect the acquisition of useful information with the business of elementary instruction, we place the young nearly in the same predicament as we ourselves should be placed, were we obliged, from day to day, to read and repeat long passages from the writings of Confucius, the Alcoran of Mahomet, or the Shasters of Bramah, in the Chinese, the Turkish and the Hindoo languages, while we understood not the meaning of a single term. And how painful and disgusting should we feel such a revolting exercise!—The consequence of this absurd practice is, that, instead of exciting desires for further acquisitions in learning,—in a majority of instances, we produce a disgust to every species of mental exertion and improvement; instruction becomes unpleasant and irksome, both to the teacher and the scholar; the child leaves school without *having acquired* any real knowledge, and destitute of any *relish* for it, and seldom afterwards makes any use of the instructions he received for the further cultivation of his mind in wisdom and virtue. To this cause, perhaps, more than to any other, is to be attributed the deplorable ignorance which still pervades the mass of our population, notwithstanding the formal process of instruction they undergo,—and the little relish they feel for devoting their leisure hours to the improvement of their minds, and to those pursuits which are congenial to rational and immortal natures.

II. Another defect which pervades the whole system of scholastic instruction in our country, and of which the former is a native consequence, is, *that there is scarcely one of our elementary books adapted to the capacities of youth, and calculated to excite their attention and affections, by its interesting and instructive details.*

Not to mention the dry and uninteresting lists and details contained in most of our spelling-books, and the vague and sombre moral instructions they exhibit—let us fix our attention, for a moment, on the general train of subjects contained in "Barrie's Collection," and "Tyro's Guide," and in "Scott's Beauties of Eminent Writers,"—the books most commonly used in the parochial and other schools in this country,—and we shall soon perceive that they are every thing but calculated for the purpose intended. These works (which, like some others of the same fry, seem to have been constructed by means of the scissors) chiefly contain extracts illustrative of the beauties of sentiment and composition:—Speeches *on political subjects formerly* delivered in the Roman, Grecian, and British Senates—Characters of Pope, Dryden, Milton, or Shakespeare—Descriptions of the battles of Poictiers, Hastings, Agincourt and Bannockburn—Abstract eulogiums on virtue, oratory, and the art of criticism—prosing dissertations on the cultivation of taste—on happiness, retirement, and meditation—Speeches and Epilogues of stage-players, political disquisitions, foolish tales, parables and allegories—Falstaff's encomiums on sack—Hamlet's advice to players—Epilogue of Garrick for the benefit of decayed actors—the Drunken Knight and his Brawling Lady appeased—Speeches of Quinctius Capitolinus, of Romulus to his citizens, of Hannibal to Scipio, and of Galgacus to his army—East India Company's address on the junction of Spain and France—Mr. Walpole and Mr. Pitt's Parliamentary debates—Extracts from the Poems of Akenside, Thomson, Milton and Young—Speech of Sin to Satan—Speech of Satan in his infernal palace of Pandemonium—Moloch's speech to Satan—Belial's speech in reply—Satan's soliloquy—the combat of the Horatii and the Curiatii—Captain Bobadil's method of defeating an army—Clarence's dream—Norval and Glenalvon's revengeful encounter—Lord and Lady Randolph, Sir Charles and Lady Racket—Sempronius' speech for war—Description of Queen Mab—Ossian's address to the Sun—Soliloquy of Dick the apothecary's apprentice—Alexander's Feast—Blair's Grave—Young's Life, Death, and Immortality—Queen of the Fairies—the Wolf and the Crane—the Town Mouse and the Country Mouse—the Tailor and the Conjuror—the Old *Man and his Ass*—with a multifarious medley of *pieces of a similar* description.

These comprehend a fair specimen of the prominent subjects selected, in our common school-books, *for the purpose of training the youthful mind in knowledge and virtue.* I have no hesitation in asserting, that more unsuitable subjects, consistent with common decency, could scarcely have been selected, and that they are little short of a direct insult offered to the youthful understanding. The compilers of such collections, either suppose, that the juvenile mind, at the age of eight or nine years, when such selections are put into their hands, has embraced a range of thought and contemplation far beyond what it is capable of, in ordinary cases, or they wish to insult their imbecile minds, by offering them stones instead of bread, or they rake together their extracts at random, without considering whether they are at all suited to the class of persons to whom they are addressed. For there is not one lesson out of twenty which is level to the range of thought, and to the capacity of the youthful mind, in its first outset in the path of science, even although parents and teachers were to attempt an explanation of the passages which are read; as they embody descriptions and allusions respecting objects, events, and circumstances, which cannot be duly appreciated without a previous course of study; and they abound with a multitude of abstract speculations which can never convey well-defined ideas to the understandings of the young. What ideas can a boy of seven or eight years' old form of the Parliamentary debates of Mr. Pulteney, Mr. Pitt, or Sir Robert Walpole; of the speech of *Marcus Valerius on* a dispute between the *Patricians and Plebeians* concerning the form of government; of dissertations on the art of Criticism; of Belial's speech to Moloch; or even of Blair's Grave, or Young's Life, Death, and Immortality;—or what interest can he be supposed to feel in such themes and discussions? I appeal to every one of my readers, if, at the age now specified, they ever understood such selections, or felt gratified and improved by perusing them. It is an absurdity, at once perceptible, that the beauties of sentiment and composition which are appreciated and relished by persons of refined taste, at the age of twenty or thirty, will be equally relished and admired by children of eight or ten years of age; and yet, from an examination of our initiatory school-books, it is undeniable, that, on a false principle of this kind, almost all our elementary works have been constructed.

But, it is farther to be regretted, that this is not the only fault that can be charged upon these productions. They exhibit scenes and sentiments which ought not to be familiarized to the minds of children, and which are repugnant to the spirit and practice of genuine Christianity. In almost every page, both of the prosaic and poetic extracts, the *war gong* is ever and anon resounding in our ears, and "the confused noise of the warrior, with garments rolled in blood." The Cæsars, the Alexanders, and the Buonapartes, of ancient and modern times, instead of being held up to execration as the ravagers and destroyers of mankind, are set forth to view as glorious conquerors and illustrious *heroes*, whose characters and exploits demand our admiration and applause. And if, at any time, the minds of the *young imbibe the sentiments* which pervade their lessons, it is generally when they breathe a *warlike spirit*, and exhibit those desolations and ravages which ambition and revenge have produced in the world,—and when they themselves are trained to *spout* at an examination, and, arrayed in warlike habiliments, with guns, or spears, or darts, to *ape* the revengeful exploits of a Norval and a Glenalvon. I have beheld the young, when engaged in such exhibitions, eulogized and applauded by their examinators, and surrounding spectators, more than on account of all the other scholastic improvements they had acquired. To this cause, doubtless, as well as to others, is to be attributed the spirit of warfare and contention which still reigns on the theatre of the political world, and which has desolated, and disgraced, and demoralized, every nation under heaven. I have known a teacher who has turned over page after page, in some of the works now referred to, in search of a passage worthy of being committed to memory by his pupils, and who could not in conscience fix upon any one, in a long series of extracts, on account of its being imbued with this antichristian spirit. In addition to this striking characteristic of our school-collections, and in perfect accordance with it —it may also be stated, that Pride, Ambition, Revenge, and other Pagan virtues, are sometimes held up to view as the characteristics of a noble and heroic mind; and swearing, lying, brawling, and deceit, are frequently exhibited in so ludicrous a manner, as almost to win the affections, and to excite approbation.

But, in fine, although the selections to which I allude were level to the *comprehensions* of the young, *and untinged with antichristian* sentiments—what is the amount of all the knowledge and instruction they contain? They embrace no perspicuous system of interesting and useful information,—scarcely any thing that bears on the cultivation of Christian dispositions,—no exhibitions of the scenes of Nature and Art in which the young may afterwards be placed, —little information respecting the works of God, the revelations of his word, or the useful inventions of men. The beauties which adorn the scenery of nature, the wonders of Creating Power, as displayed in the earth, the air, the ocean, and the heavens; the displays of Divine Wisdom and Goodness, which every where surround us; the mild and pacific virtues of Christianity, which ought equally to adorn the prince and the peasant; the avocations and amusements of domestic life; the scenery of the country, the city, and the village, or the important facts contained in the Sacred history,—are seldom or never detailed, with interesting simplicity, in this class of publications. And, are a few extracts from old plays and novels, romances and fables, Pagan mythology and Parliamentary debates—from the speeches of Roman orators and the epilogues of stage-players, to be considered as the most agreeable and substantial food for the youthful intellect, and as the most judicious process for imbuing it with useful knowledge, and preparing it for the employments of an immortal existence?* Are the absurd opinions of Roman and Grecian poets and warriors, respecting their gods, their heroes, and their religion, and the polluted streams of heathen morality, to be substituted in the room of the simple and sublime delineations of revelation, the pure principles of the gospel, and the noble discoveries of modern science? If so,—then let us not boast of imparting to our children a rational and a *Christian* education.

I have alluded more particularly to the works above mentioned, because they are most frequently used in our borough and parochial schools; but I know no works of this kind, published in this country, with the exception of two or three volumes, to which the above strictures will not, in a greater or less degree, apply. I do not, however, condemn such books, in so far as they contain sentimental extracts, for the use of advanced students of elocution,—or considered as miscellanies for the amusement of persons advanced in life, (though even in this last point of view they cannot be held in high estimation,)—my main objection rests on the ground of their being unfitted to interest the minds of the young, and to convey to them the outlines of knowledge and virtue, unmingled with the rubbish of false maxims and antichristian sentiments.*

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* The above remarks were written in the year 1821, and published in the "Christian Instructor." Since that period several school-books have appeared, compiled on more rational and Christian principles than most of their predecessors,—particularly, M'Culloch's "Course of Elementary Reading in Science and Literature," "The National School Collection," "The American Reader," by Merriam, and several others; but they are chiefly adapted for the higher classes in schools, and for young people who have nearly finished their course of instruction in reading, and they have been introduced into comparatively few of our schools, and in many parts of the country are altogether unknown. Several useful compilations have likewise of late been published in England and America, but they are more adapted to the use of families and domestic instruction than to public seminaries. I am acquainted with no book for the Juvenile classes, comprising useful information, and compiled in such a manner as to render *knowledge and* morality perspicuous, *fascinating, and interesting to the young*, and calculated to give full

III. Another error which runs through our scholastic instruction is, that, while the cultivation of the judgment is neglected, *the memory is injudiciously, and often too severely exercised.* The efforts of memory, in most cases, especially when exercised in the retention of mere sounds and terms, are generally attended with painful sensations; and, when these sensations are long continued, they frequently produce a disgust at the objects and employments of education. Long passages from Homer, Shakespeare, Milton, or Pope, are given out for recitation to the young, while they are still incapable of appreciating the meaning of a single sentiment in the task prescribed; and the facility with which they can recollect and vociferate a number of jingling sounds is considered by many as the best evidence of their progress in the paths of instruction. The period has not long gone by (if it have yet passed) when the

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scope to their rational and active powers. About a year after the publication of these remarks in the "Christian Instructor," its Editor, the late Rev. Dr. A. Thomson, compiled a school-collection, and sent me a copy of it, for my inspection. My opinion of this compilation having been requested, at the next personal interview I had with the Doctor, I told him, that I considered the book free of any antichristian sentiments, calculated to make a good impression on the minds of the young, and that it contained a considerable number of instructive and entertaining selections; but that a number of the selections, however good in themselves, were too didactic and *sombre* to engage the attention of the juvenile mind. The Doctor admitted the justice of the last remark, and said, that, in another edition, he intended to throw out the pieces alluded to, and substitute, in their place, more entertaining selections. Dr. Thomson's Collection is, on the whole, a good one; but, like the others mentioned above, is chiefly adapted to the higher classes. The plan of all the school-collections hitherto published is susceptible of much improvement; and I shall afterwards take an opportunity of adverting to *this subject in a subsequent* part of this volume.

repetition of the first chapter of the first book of Chronicles, of the tenth chapter of Nehemiah, of the hundred-and-nineteenth Psalm, or of half a dozen chapters in the New Testament, by a school-boy,—with a disgusting vociferation, and a uniform velocity, like water dashing over a precipice, was regarded, both by parents and teachers, as an evidence of extraordinary genius, and as an achievement in education of far greater importance than if he had drawn an outline of universal history, or sketched the geography of the globe.—Of all the exercises of memory to which the young tyro is accustomed, there is none more injudicious and more painful to the pupil, than that by which he is constrained to get by rote the Shorter Catechism, at the early age at which it is generally prescribed. At the age of five or six, before he is capable of understanding a single sentiment of the system of Divinity, and even before he can read with ease any one of its questions and answers—he is set to the ungracious task of committing its vocables to memory, as if he were a mere machine, formed solely for mechanical movements and the emission of sounds. The reluctance with which this task is generally engaged in; the painful sensations which accompany it; the correction which follows its neglect; the ludicrous blundering; and the complete destitution of ideas with which it is generally attended—all conspire to show the absurdity of the practice. I am fully persuaded, that the unpleasant associations connected with this task, have, in many instances, produced a lasting disgust, both at the pursuits of learning, and the instructions of religion. Yet, there are few school-exercises to which parents in general attach a greater degree of importance. To omit the teaching of this catechism by rote, even although other and more perspicuous instructions were given on divine subjects, would be considered as arguing a certain degree of *irreligion* on the part of the teacher; and even respectable clergymen and others consider this exercise as a *sine qua non* in religious instruction—just as if the mere terms and definitions of this excellent summary were to produce a *magical* effect on the moral and intellectual faculties. The common argument in favour of this practice, "that it is laying in a store of religious vocables for after reflection, and that the answers will be perfectly understood in riper years,"—when considered in connection with what has been now said, is extremely futile and inconclusive. The blundering manner in which persons advanced in life frequently repeat this catechism—mistaking, for example, the answer to "What is Justification?" for that which relates to "sanctification," or what is *forbidden* for what is *required* in any of the commandments, and without being at all conscious of their error—plainly indicates, that correct ideas are seldom attached to whatever has been learned by mere rote, and that the rational faculty is seldom exerted in such exercises. In short, I have little hesitation in laying it down as a maxim that will generally hold true, that "whenever the words of a proposition are committed to memory without being understood, their meaning will afterwards be seldom inquired after, or perceived." I am convinced, that a careful perusal of *this catechism*, or any other similar system, accomanied with proper explanations, at the age of fourteen or sixteen, will convey more real information han can be acquired by all the painful labour and rudgery endured by committing it to memory at the usual age at which it is prescribed.

Let it not, however, be imagined, that I wish to hrow the least reflection on the Shorter Catechism, s a summary of Christian doctrine and duty. On he contrary—without admitting every sentiment it ontains as perfectly correct, or necessary to be emodied in such a synopsis of theology—I consider it, n the whole, as one of the most comprehensive ompends of divinity ever published—which, with a ery few retrenchments and modifications, might orm a *basis of union* to almost all the religious odies in this country. But the very thing in which ts chief excellence consists, constitutes an argument gainst its being used as a first catechism. It is so *omprehensive*, that almost every word includes an important meaning, and has an allusion to those profound views of the Christian system, and to those controverted points in divinity, which are chiefly recognised by professed divines. It is not by endeavouring to convey *general* and *abstract* views of Christian doctrine, or by cramming the memories of young persons with a multiplicity of theological terms and doctrinal opinions, that instructions in religion will be successful in arresting their attention, and impressing their minds; but by particular explications, and familiar illustrations borrowed from sensible objects, of a few of the most prominent truths of the Christian system, that impressive and well-*defined ideas will be communic*ated to the youthful mind. And perhaps too little care is exercised in communicating, in a vivid and impressive manner, the fundamental truths of *natural religion*, which form the groundwork of the different parts of the Christian superstructure. I conceive, that it is time enough to commence the regular study of the Shorter Catechism, at the age of twelve or thirteen, when its answers should be minutely analyzed, and its terms, doctrines, and moral injunctions, familiarly explained and elucidated by instructors, who have accurate and enlarged views of the truths it conveys; and, when employed in this way, it will be found a useful synopsis of Christian faith and practice. Prior to the period to which I now refer, some of Dr. Watts' first catechisms might be used; or, perhaps, it might be possible to construct a catechism more simple and interesting, and containing more striking illustrations of natural and revealed religion, than any that have yet appeared; or, perhaps, without adopting the form of a catechism, we might directly refer to the positive declarations of Scripture, in reference to its facts, doctrines, and precepts, accompanying the passages we extract with short comments and familiar elucidations. The truths contained in such catechisms might be learned with ease, and even with pleasure, by the young, if they were accompanied with a few hints from the parent or teacher, to elucidate the facts and doctrines exhibited to their view; and especially, were they compiled on such a plan, as to give occasional exercise to the curiosity and the judgment in finding out the proper answers.

In throwing out such remarks as the above, I am aware that I am treading on delicate ground. But far more convincing arguments than any I have yet heard must be brought forward, before I can see reason to alter the opinion now stated. If it be once admitted, that the communication of *ideas* ought to form the great object of all instruction—that the young, at an early age, are capable of being the recipients of knowledge—and that education should be rendered as pleasant and agreeable as the nature of the exercise will admit—I will not fear to face any argument that may be presented on this subject. I am far from wishing to insinuate, that the memory ought not to be exercised in the process of education; for it is one of the powers or instruments conferred on us, for the purpose of making intellectual acquisitions; but I contend, that its exertions, in the first instance, ought to be gentle, easy, and rational, and employed chiefly in relation to those objects about which the young are capable of forming some distinct and agreeable conceptions, and not merely on sounds and terms, and abstract propositions, to which no precise meaning is attached.

IV. In our schools and seminaries, as presently conducted, *grammar is attempted to be taught at too early an age.* Grammar is an abstract branch of the philosophy of mind; and, therefore, to enter with intelligence and interest into its spirit, the foundation of its rules and their application—requires some degree of knowledge, observation, and maturity of judgment, not generally possessed by juvenile minds; and, consequently, to attempt to teach it to infants, *in a systematic form*, seems almost as preposterous as *it would be to attempt to* instruct them in the

Newtonian philosophy, or in the Hutchinsonian system of metaphysics. The little urchin of six or seven years of age, may, indeed, be taught to repeat the definitions of all the parts of speech, and of all the moods and tenses of verbs—the inflections of nouns and verbs, and even the whole of the rules of syntax; but such exercises are always accompanied with a certain degree of labour and disgust, which tend to sour the mind in its progress through such scholastic instruction. And after all the mental anxiety and toil endured in such mechanical exercises, they acquire not, perhaps, a single correct idea on the subject, especially in the abstract and superficial manner in which it is taught in our common schools, and are unable to appreciate any one useful purpose to which such exercises are subservient. To distinguish a *noun*, or the *quality* of a noun, or the nature of a *verb*, and to correct a simple sentence in which a verb disagrees with its nominative, are exercises which children may be taught at an early period, by familiar examples, and which might be rendered both amusing and instructive, without the formality of technical terms, complex rules, or abstract systems; but to proceed much farther than such easy exercises, before the intellectual powers are somewhat matured, appears to be wasting time and money, and mental anxiety, to no purpose. Even the elements, or the more popular parts, of natural history, geography, astronomy, and experimental philosophy, could be taught with much better effect, at such an early period, than the abstract study of verbs and adverbs, conjunctions and declensions, and metaphysical rules, *the foundation of* which no child can comprehend;

because, in those departments of knowledge, sensible objects and pictorial representations can be presented to the view of the juvenile mind as elucidations of the facts and principles inculcated.

That the opinions now stated may not appear altogether singular, I shall quote a sentence or two from the writings of the learned *Mr. Smellie*—the well-known translator of "Buffon's Natural History." In his work on "The Philosophy of Natural History," vol. ii. p. 453, he remarks—"Premature studies are uniformly *painful*, because young minds are incapable of comprehending the principles, and far less the application of them to arts or sciences. *Grammar*, the first science obtruded upon, I may say, *infantine* intellects, is one of the most abstract and intricate. To attain even a tolerable knowledge of grammar, whatever be the language, (for the general principles are, and must be, the same,) presupposes a considerable range of intuitive facts, as well as of acquired ideas." Again, speaking of the absurdity of "journeymen shoemakers, tailors, weavers, bakers, carpenters," &c. sending their children for years to Latin and Grammar schools, he remarks—"During the hours of recess from scholastic discipline, nature resumes her empire, and, by her irresistible power, obliges the children to frisk and romp about, and to enjoy those various and pure pleasures which result from activity and amusement. But these enjoyments are no sooner over, than the abhorred ideas of unnatural confinement, and of a constrained attention to *jargon*, which to them is completely unintelligible, instantly recur, and harass and *terrify their imaginations*. The *fruitless* and pain-

ful labours which such preposterous conduct in managing the early education of youth produce, are immense, and truly ridiculous." P. 448.

V. In regard to the art of *writing*, which is chiefly a mechanical exercise, the quality of which depends somewhat on the taste of the pupil—a great degree of fastidiousness exists, and *by far too much importance is attached to the acquisition of an "elegant hand*." To so disgusting a degree has this predilection been carried, on certain occasions, that all the qualities of a good teacher have been considered as concentrated in this one acquirement; and persons have been selected to superintend the instruction of youth, who were destitute of almost every other qualification, merely because they could write "a fine text," or "an elegant running hand." The art of communicating our thoughts by writing, is one of the most useful accomplishments, which every person from the highest to the lowest ranks of society ought to possess. To attain a certain degree of neatness and regularity in writing, is highly desirable; and where a taste for elegance in this art exists, it should be encouraged, though not at the expense of more substantial acquirements. To write *straight*, to attend to the proper use of capital letters, and to arrange the subject of writing into distinct sentences and paragraphs, so as to render the writing easily legible, and the sentiments perspicuous to others, should be considered as the great object of this art; and such qualities of writing are undoubtedly of more importance, in the practical purposes to which it may be applied, than the acquirement of *the most elegant* "dashes" and "flourishes" of enmanship. I have, indeed, known but few indiiduals who have prided themselves in such showy ccomplishments, who were not extremely superficial in their other attainments. It is a very odd circumstance, and shows to what a ridiculous length a fastidious taste for elegant writing may be carried—that most of the higher ranks, who have been taught by the first writing-masters, now consider it as *fashionable* to write an illegible scrawl, which is nothing else than a *caricature* of good plain writing—which is the pest of merchants, printers, editors, and every other class of correspondents—which costs them a world of trouble before it can be read; and, in many cases, the very names of the writers can scarcely be deciphered. This is *elegance* with a witness; it is carrying it to its highest pitch of perfection, by rendering the art of writing almost useless for the purpose for which it was intended. I do not mean, by these remarks, to insinuate that care and attention should not be bestowed, in order to acquire a neat and accurate mode of writing; but merely to modify that undue degree of importance which is attached to the accomplishment of "fine writing," and to impress upon the mind this sentiment, that a man may be possessed of very slender attainments in this art, in respect to elegance, and yet prove a good general teacher; while another may excel in all the ornamental flourishes of penmanship, and, at the same time, be altogether unqualified for directing the young mind in knowledge and virtue. I have known parents and guardians who seemed to consider the most useful and substantial accomplishments of youth *as of little value, while their* children remained in the smallest degree deficient in the flimsy *ornaments* of writing, and the higher elegancies of penmanship. In a word,—to arrest and record the useful ideas which pass through our minds, to communicate them to others, in such well-defined characters, and with such external neatness and order as may be most perspicuous and easily legible—to acquire a certain degree of facility and rapidity in forming characters and words—and to state mercantile accompts with taste, accuracy, and precision—should be considered as the great objects of the art of writing, beyond which it is of little importance to aspire; though, at the same time, no individual should be discouraged from indulging a taste for elegance in this department, when it does not absorb the attention from more important pursuits.

VI. With regard to our mode of teaching *Arithmetic*, a variety of strictures might be made. This department of scholastic instruction, like all the rest, is generally conducted in too abstract a manner—too much detached from the objects of sense, and from the pursuits of science and the business of human life, to which it has a reference. As all our notions on any branch of human knowledge are originally derived from *sensible* objects, so our ideas of numbers and their various relations and combinations, must be derived from the same source; and consequently, without a reference to the original objects and ideas whence the notion of numbers is derived, no accurate impression of their signification and use can be made on the juvenile mind. A boy may be taught to distinguish the character 9 from the rest *of the digits*, and yet may remain devoid of a distinct conception of the *idea* for which it stands; and, in the same manner, he may be taught by rote, that $9+8=17$; that $16-9=7$; that 7 times 8 are 56; and that the quotient of 84, divided by 14, is equal to 6, without attaching any definite conception to such arithmetical processes.—By neglecting to illustrate the fundamental rules of arithmetical computation, in a familiar and amusing manner, by presenting to the eye the precise objects or ideas which numbers represent, we leave the young arithmetician to grope in the dark, and to a vagueness and confusion of conception in all the subsequent operations of this useful study.

In most of our elementary arithmetical works, the questions for exercise in the different rules are not so simple and interesting to young minds as they might be rendered. The practical use of the various operations—the commercial transactions to which they refer, and the extent and capacity of the weights and measures about which their calculations are employed, are seldom appreciated with any degree of precision, for want of the original ideas denoted by the terms employed, and for want of those models and representations of money, weights, and measures, by which they might be illustrated. In many instances, too, there is a studied brevity and obscurity, and a tendency to puzzle and perplex, instead of rendering the operations of arithmetic simple and perspicuous. While a young person may easily be made to perceive the object and meaning of such questions as the following—"What is the price of 30 lemons at twopence *a-piece*?" or, "If one pair of *shoes cost 5s. 6d., what will* 7 pair of shoes cost?"

—he is quite puzzled to conceive what is the precise meaning of scores of questions arranged in columns in the following manner—497865 *a* ¼*d.*—7643984 *a* 3¾*d.*—46794 *a* 4*s.* 7½*d.*—444766 *a* 15*s.* 11¾*d.*, &c. &c. Even although he may happen to perform mechanically the operations intended, he frequently knows nothing at all of the principle and object of his calculations. It is true, indeed, the teacher is expected to explain the nature and design of such questions; but in a crowded promiscuous school he cannot afford time to give the necessary explanations to every individual. And why should it be requisite? Why should not every book on arithmetic be so perspicuous and explicit as to render the meaning and object of every question clear and well defined even to the youthful understanding? And why should not questions, circumstances, and objects, be selected as arithmetical exercises, which are familiar to the young, and calculated to awaken their curiosity and attention? In short, the greater part of our arithmetical treatises, like our "School Collections," "English Readers," and "Beauties of Eminent Writers," are calculated for men of advanced years, instead of being adapted to the capacities and the range of thought possessed by boys and girls of from eight to twelve years of age. I might have enlarged to an indefinite extent on this topic; but several additional remarks may be introduced more appropriately in the sequel, when I shall take an opportunity of throwing out a few hints for the improvement of the present system of education.

In addition to the above remarks, I shall now iefly state a few *miscellaneous circumstances* which ve a tendency either to impede the education of e young, or to render it disagreeable and irksome.

1. In the first place, in most of our schools both town and country—*there is a deplorable want of ple accommodation, and of convenient school furture.* In many cases, a hundred children are mpressed into a space scarcely sufficient for the sy accommodation of one-third of that number, d appear huddled together like a flock of sheep nt up in a narrow pen. Scarcely a passage can obtained for moving from one place to another; d when one class is about to retire, and another called up, a noise, and jostling, and hubbub ensue, hich throws the whole school into confusion. The rrow and unsteady forms on which the scholars e obliged to sit—the awkward tables—the confined r—and the press and general disorder which freently occur, all conspire to render the hours voted to instruction tedious and unpleasant, and make the school partake something of the nature a jail.* Besides, in most of our cities and towns, e school-rooms are generally situated in dark oses or narrow lanes, where there is a sufficiency either of light nor of pure air, nor of space for the casional amusement of the children; so that learng, instead of being connected with cheerful and livening objects, becomes associated with every

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* It may be proper to state, that in these, and the preceding d subsequent remarks, there is no particular allusion to Gramar-schools and other public seminaries for instruction in the gher branches of education; but chiefly to those schools both town and *country where the mass of* the community is at*mpted to be instructed in the common* branches of education.

thing that is gloomy, dirty and disagreeable. A school has generally been considered as a "noisy mansion;" and, as presently conducted, it is next to impossible it should be otherwise. There is nothing which produces greater annoyance to a teacher, than the hum and the frequent clamours of a hundred tongues assailing him on every side; and wherever such noisy turbulence daily prevails, it is impossible that a train of rational instructions can be successfully carried forward. Of the many causes of noise and confusion in schools, I am persuaded this is none of the least—the want of space and proper accommodation for the various movements, classifications and arrangements, which the business of instruction requires—and the want of separate apartments, or of an ample enclosed area around the school, into which a portion of the children, even during school-hours, might occasionally be sent, either for amusement, or for the preparation of their lessons, so as to prevent the general annoyance of the teacher.

2. Another circumstance which tends to make learning disagreeable to the young, is, that *they are in general confined too long in school.* When a boy is first sent to school, he is kept in a confined posture for two or three hours at a time, and generally for five or six hours in a day. His direct attention to his lesson, during all this time, does not perhaps exceed fifteen or twenty minutes. During the whole of the remaining hours he receives no instruction, and either sits as stiff as a poker, or becomes restless and noisy, or sinks into sleep. He dares not speak to his companions for fear of punishment, he cannot, without assistance, apply his attention to the un-

known characters and sounds he is set to learn, he cannot amuse himself with his windmills and whistles; and, consequently, he feels himself in a state destitute of enjoyment. Can it then be wondered at that young people should so frequently feel an aversion to school, and require to be driven to it as slaves to their task-work, or as culprits to a jail? In such a case as I have now supposed, there is no reason why a child should be confined to school beyond half an hour at any one time; and it is a piece of absurdity, and even of cruelty, to prolong their confinement a moment beyond the limits which are essentially requisite for their instruction; and yet many parents are so foolish as to think, that the progress of their children ought to keep pace with the number of hours they are immured within the walls of the school-room. Children are not mere machines, whose movements may be regulated by weights and springs; they must give scope to their natural vivacity and desire for activity, and must feel, like all other animals, when they are confined to unnatural attitudes, and cramped in their movements. The tongue—that "unruly member" among all ranks and ages—cannot be restrained; the space of twelve inches square, allotted them for their seat, they will not be confined to; their feet and limbs will not remain in that precise mathematical position which order is supposed to require; neither will their hands remain in the same unvaried posture as those of a marble statue, but will occasionally be pushing, first towards one side, and then towards another for the benefit of their companions. Hence arise noise, dissension, altercation, and disorder—the chief circumstances which render corporal punishment at all expedient in public schools.

To confine a little boy in school, contrary to his inclination, when no useful purposes can be served by it, and when it is productive of so many inconveniences to the teacher, to the general interests of the school, and to the boy himself—appears to be the height of folly and imprudence, and must present to the juvenile mind a forbidding prospect of the path which leads to the temple of knowledge. Even when children have advanced to that stage in their education where they are capable of preparing their lessons by themselves, it appears improper to confine them longer than their attention can be fixed to their scholastic exercises. Fifteen or twenty minutes of unremitting application to their lessons before and after having been heard by their teacher in their respective classes, would be of more importance, in promoting their progress in learning, than two or three hours spent in yawning over their books, or devoted, as is usually the case, to noisy prattle and impertinence. Those scholars who are farther advanced, or are engaged in arithmetical or other processes, may remain during all the hours usually allotted to scholastic instruction.—In throwing out these remarks, I do not mean to insinuate, that teachers should have much less confinement in public schools than they now have; I only propose it as a principle, which should generally be acted upon, that children should never be confined to school a minute longer than is absolutely necessary for their instruction. And, if this principle were generally recognised, promiscuous schools would no longer present a scene of idleness and impertinence, of noisy bustle and confusion. But, whatever may be the opinion of teachers on this head, the majority of parents in the present age are generally in opposition to all such arrangements.

3. *The exercise of undue severity towards the young, and the want of a disposition to bestow commendation where it is due*—is another circumstance which retards the beneficial effects of education. In every rank and department of human life, mankind are too much disposed to find fault with the opinions and conduct of others, and to pass a harsh sentence on the minor delinquencies of their neighbours; while they are slow in bestowing their commendation on those actions and qualities which are laudable and excellent. This disposition, we have reason to believe, is too frequently displayed in public seminaries of instruction. In many instances, trivial faults are magnified into great offences; corporal punishment is inflicted for slight inadvertencies; the terms, blockhead, scoundrel, villain, ass, dunce, numskull, and other degrading epithets, are liberally applied to the youthful group, because they occasionally give way to their playful humours, or because they do not thoroughly comprehend what has never been clearly explained to them. When their conduct is unimpeachable, they are simply screened from punishment; but the meed of praise for diligence and improvement —which has so obvious a tendency to cheer and animate the youthful mind—is slowly and reluctantly bestowed. Those endearing appellations to which they are accustomed under the domestic roof are seldom heard in the village school; and scolding, threatening, and *the detested lash*, are too frequently

'the order of the day.' While they are sometimes exercised in writing the following sentiment on their copy-books, "*Commendation animates the mind,*" the voice of praise and commendation is seldom heard resounding from the desk, because, forsooth, they have not yet attained to perfection in their behaviour, or in any of their scholastic exercises. Imperfections attach themselves to the performances of every human being; but where should we find a person grown up to manhood, who would not feel indignant at being perpetually found fault with in all his operations, and who would not be discouraged in the prosecution of his plans, when that portion of praise to which he is justly entitled is studiously withheld? An assemblage of children in a school is a republic in miniature, animated materially by the same principles, passions, and interests, as those which appear in action on the theatre of the great world, only directed to inferior objects and pursuits. They must, therefore, feel indignant at the epithets, the threatenings, and the blustering, with which they are so frequently assailed, and must also feel that injustice is done them, when every trivial fault and oversight is magnified into a crime. And, on the other hand, we know by experience, that nothing contributes more to cheer and stimulate the juvenile mind than to receive the merited approbation of guardians and instructors.

4. Another circumstance prejudicial to an accurate and enlightened education, is *the practice of hurrying children too rapidly from one book to another.* In the "Statistical View of Education in Scotland," published in the Christian Instructor, during the year 1819, it is stated by most of the teachers, that

the children at their several schools can read the New Testament by the time they have been *one* year at school. Nay, some of them assert, that they can read it in six months, and even during the second and third quarters.* That the New Testament is put into the hands of children at the periods now stated, and that they are allowed to stammer through it in the best manner they can, is doubtless a fact, and a fact which is much to be regretted; but that a child that goes to school at the age of four or five, is able, in ordinary cases, to read the New Testament with any tolerable degree of accuracy and ease, in six, nine, or even in twelve months, is altogether incredible. There are many passages in this book as difficult to be read as the writings of the generality of English authors; and, if a boy or girl can once read it with propriety and ease, a very little additional practice will suffice to enable him to read any other English work. The statements to which I refer, however, show that the practice of hurrying children from one book to another, is too prevalent in many of the parochial schools of this country, and must, consequently, be attended with a train of pernicious effects. I have seen children sent to school with a Testament in their hand, as a class-book, who could not read a single verse, and could scarcely pronounce two or three of the easiest vocables without pausing to spell almost every word that occurred, and who, at the same time, appeared deficient in their knowledge of the characters of the alphabet. Before children can read such a book as the New Testament, with any degree of ease and fluency, they must be trained to the exercise of spelling, and of reading a variety of appropriate lessons accommodated to their capacities, till they can read a sentence or a paragraph without blundering or hesitation. But how is this proficiency to be acquired?—how can a child, with propriety, be transferred from one spelling-book to another, and from one series of reading-lessons to another, in the space of six or eight months? The practice to which I refer seems almost to imply, that they are conducted at once from a twopenny Primer to the Evangelical History or the Acts of the Apostles. A pupil should be able to read with ease every initiatory book that is put into his hands before he is transferred to another. For, by passing with a rapid transition from one book to another, and to lessons which are too difficult for his articulation and comprehension, he will be apt to acquire a hesitating and a blundering habit of reading; he will be discouraged in his progress; he will seldom attempt to aim at accuracy and perfection; he will appreciate few of the ideas contained in his lessons; he will seldom acquire even the elements of accurate spelling and pronunciation, and will be apt to continue through life, an awkward, an incorrect, and an injudicious reader.

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* See Christian Instructor for August and November, 1819. pp. 561 and 763.

5. The last circumstance I shall mention, in the meantime, as prejudicial to an accurate and enlightened education, is—*the attempt to teach three or four branches of education at the same time.* The principle of the division of labour, and its utility when applied to the various departments of art, science,

and commerce, are now fully appreciated and realized; and to this circumstance is to be attributed many of the improvements of modern times. In cities and large towns this principle has also been applied successfully to the art of teaching. But it is well known that in the majority of schools, especially in the country, an attempt is made to teach reading, grammar, writing, arithmetic, book-keeping, mathematics, Latin, French, and other branches, in the same school, by the same teacher, and at the same time. The consequence is, that none of them is taught with efficiency and accuracy—which can only be obtained by allotting separate hours for each distinct department of knowledge, and, if possible, having separate teachers for every branch of scholastic instruction. Before this principle, however, can be followed out to its full extent in country schools, a variety of arrangements require to be made, a variety of difficulties and obstructions removed, and a variety of new scholastic institutions established—the details of which I shall postpone to a subsequent section of this work.

Such is a brief sketch of some of the evils and defects connected with the system of instruction which has so long prevailed in this country. It treats rational beings as if they were mere machines—it presents the *form* of education without the *substance*—it expends its energies on *words* instead of *things*—it rests in the *means* of knowledge, without prosecuting the *end*—it stimulates the *memory*, and even *tortures* it, by cramming its compartments with sounds instead of sense, but permits the *understanding* to remain in darkness and desolation—it indirectly fosters *malignant* passions, but leaves the *benevolent* affections waste and uncultivated—it throws a gloom over the enjoyments of the young, instead of inspiring them with delight at the prospect of being introduced to the sublime and interesting scenes presented in the temple of knowledge—it conveys a jumble of confused notions into their minds, but leaves them ignorant of all that is grand and ennobling, and interesting to man as a rational and immortal intelligence. In proof of these positions, we need only look around us on the various ranks of society. Where is there one individual out of twenty to be found, who has his mind enlightened in the knowledge of those subjects with which every human being, considered as a rational, social, and immortal being, ought to be acquainted? Where is there even to be found a *relish* for useful information and intellectual improvement, among the majority of those who have gone the round of the usual course of education? And where are to be seen the *moral effects* of our scholastic training on the stage of social and active life? Is not ignorance still a prominent trait in the great mass of our population? Do not vice and immorality very generally prevail? And are not selfishness and avarice, envy and revenge, sensuality and other grovelling affections, still the distinguishing characteristics of the majority of the lower orders, and even of the higher ranks of society, notwithstanding the scholastic process through which they have passed? If any individuals in our times have been excited to the prosecution of rational and scientific pursuits, the stimulus has been derived from other quarters, from other circumstances, and from other institutions. The greater part of the benefit derived from the existing system, consists in a considerable portion of our population having acquired, to a certain degree, the art of reading, and, consequently, the capacity of rendering it subservient to the acquisition of knowledge, *when certain peculiar and favourable circumstances in after life conspire to stimulate their mental activity, and to produce a relish for rational enjoyments.* But, it may be affirmed, without the least hesitation, that there is not one out of twenty of the population who is stimulated, in this way, to rise superior to his grovelling associates in the scale of intelligence.—Such considerations evidently show, that the system of instruction hitherto adopted is glaringly defective and inefficient for the improvement of society in knowledge and virtue;—and must be subverted and new-modelled, if ever we expect to see mankind raised to that rank which they ought to hold in the scale of moral and intellectual excellence. Till this object be accomplished, I verily believe, that, notwithstanding the instructions delivered from a thousand pulpits, very little change to the better will appear on the face of general society; for the public instructions of religion are neither understood nor appreciated by the one half of our church-going population, owing to the deficiency of their moral culture in the early periods of life. That such a futile and inefficient system of tuition should have so long prevailed in this enlightened age, as it is generally termed, and that no powerful and general exertions should have been made for its improvement, is little short of a libel on the common sense and the Christianity of our country.

In throwing out the preceding hints on the errors and deficiencies of the present system of education, let it be carefully remembered, that I am far from attaching blame indiscriminately to that respectable body of men who superintend the parochial and other seminaries in this country. It is indeed to be regretted, that there are too many persons employed as teachers who consider themselves as sufficiently qualified for the office, if they can write a tolerably good hand and cast accounts. But, on the other hand, it is one of the pleasing signs of our times, that the characters and qualifications of teachers are rapidly advancing in respectability, and our public schools are in general filled with men of learning and talent. It is to the *system* of teaching,—and not to the respectable individuals who act under it,—that these strictures more particularly refer. I am fully aware of the difficulties and the opposition which teachers have to encounter when they deviate from the common mode—arising from prejudices in favour of established practices, the ignorance of parents, and the foolish and unchristian modes by which many children are trained under the domestic roof. Many of our intelligent teachers perceive the evils of the present system, but they are *obliged*, in the meantime, to act under it. In their individual and insulated capacity, unsupported by public patronage, they cannot remove its essential defects, nor attempt any material or important improvement, in consequence of the current of popular opinion; and their deviation from established practices would, in certain cases, tend to injure their pecuniary interests. I have known instructors of youth who have attempted improvements similar to some of those above hinted at, who were afterwards constrained to throw them aside, owing to the causes now specified. I knew one in particular, who selected the most simple and interesting reading-lessons, and caused his pupils to give an account of every leading idea contained in them—who likewise attempted to explain the meaning of every question, Psalm and passage, which was to be committed to memory, and consequently, a very small portion only was prescribed, that it might be clearly understood and accurately repeated. But this plan could not be endured by those who estimate the quantity of instruction by the number of unmeaning lines and vocables which their children can vociferate. Such persons consider the repetition of three or four pages of mere words without ideas, as of far more importance than the communication of a hundred well-defined notions. He also caused the children, after their lessons were prepared and rehearsed, to write upon slates—letters, triangles, parallelograms, and other mathematical figures and diagrams, in order to keep them fully employed while in school; and occasionally permission was granted to scratch whatever they pleased on their slates—men, horses, houses, windmills, or any other fancy, as a reward for the attention they had previously bestowed. But he was obliged to desist from the prosecution of these and other plans, in consequence of "the hue and cry" which was raised about such "trifling modes of tuition."

It is, therefore, pretty obvious, that no general or extensive improvement in the system of education can be expected, till a *strong conviction* be produced in the minds of the intelligent public of the *necessity* of a more rational and efficient system being adopted, and till a powerful and simultaneous movement take place among all classes, in order to the erection and endowment of seminaries calculated to produce a *moral* and an *intellectual* education. For many of the principles which pervade the present mode of tuition require to be *completely reversed*, and a system organized which shall form the foundation of the future progress of the human race—which will bear the test of succeeding and enlightened ages—which will render the acquisition of knowledge pleasant and desirable to the young—and which will embrace every thing that is interesting to man as an intellectual being, as a member of society, and as a candidate for a blessed immortality.

In the meantime, I am fully convinced, (however extravagant and paradoxical the sentiment may appear,) that the great majority of our youth acquire more real and *substantial knowledge*, during their play hours, and in their various amusements and intercourses with each other, than they acquire during the formal process of teaching while in school. At these times they acquire a rude knowledge of the appearances and qualities of various objects; of some of the laws of Nature and its general scenery; of the forms, economy, and varieties of vegetables,—of the habits and instincts of animals; of the application of several mechanical powers; and of the various modifications of human temper and action. Their games at shuttle-cock, nine-pins, marbles, balls and tops—

their exercises in swimming, running, climbing, swinging and jumping—their visits to museums, menageries, and other exhibitions of natural and artificial curiosities—their views of the shipping, and the operations connected with it in seaport towns—their occasional excursions to the delightful and romantic scenes of the country, and the daily spectacle of the ebbing and flowing of the sea, of the sun shining in his glory, and of the moon walking in brightness among the host of stars—convey to their minds fragments of useful knowledge, more diversified and practical, than any thing they acquire from their catechisms, spelling-books, grammars, and "English Readers," in the manner in which they are generally taught. In school they acquire, indeed, the *means* of knowledge, in being taught the arts of reading, writing, and arithmetic; but as they are seldom taught to apply these means to their proper ends, little knowledge is thereby acquired; and, in the majority of instances, they depart from school, and pass the remainder of their lives, without ever thinking of making the further cultivation of their minds even a subordinate object of pursuit—glad that they are at length released from the confinement and drudgery connected with scholastic discipline. As a proof of this I need only appeal to the ignorance, the prejudices, the foolish opinions and the wayward passions, which still pervade the greater portion of the inferior ranks of our population, and even of the middling and higher classes—and the disinclination which so generally exists to rational investigations, and to prosecuting the path of mental improvement.

Much has of late been said on the subject of *abolishing corporal punishment* in schools; and it is certainly a highly desirable object, which we should endeavour to promote by every means in our power. But we can have little hope that this will ever be fully attained while the present plan of education continues in operation, and while the majority of children are so injudiciously trained, as at present, by their parents and guardians. If, however, the evils complained of in this chapter were removed; if the books which are put into the hands of children were interesting and level to their comprehension; if they were taught to understand the lessons they read and commit to memory; if the understanding and the affections were as frequently exercised as the memory; if the mechanical drudgery of grammar were postponed to a period when they could enter into its spirit and applications; if the processes of arithmetic were more frequently illustrated by sensible objects and representations; if interesting experiments and representations, calculated to illustrate the operations of nature and art, were frequently exhibited; if ample and agreeable accommodation were furnished, both within and without doors; if they were not too long confined in school; if a spirit of conciliation on the part of teachers, and a disposition to bestow merited commendation, were generally exercised; if every branch of education were taught at separate hours, and the attention of the pupil completely engaged while in school; and if a system of moral training were to form a *prominent* object in the business of education—we have good reason to believe that corporal punishment might be almost, if not altogether superseded; and the employment of teaching in crowded promiscuous schools—instead of resembling Paul's "fighting with beasts at Ephesus," might become a rational, interesting, and delightful employment, both to the teacher and to the scholars.*

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* The preceding strictures, chiefly written in 1821, were published in the Edinburgh Christian Instructor, for March 1822, and February 1823. The Author has good grounds for stating, that they proved a stimulus to the active mind of its learned Editor, the late Dr. A. Thomson, in exciting to those arrangements which were afterwards made in St. George's Parish, over which he presided, for establishing schools on a more enlightened system, both for the children of the higher and the lower ranks, within that district. In the autumn of 1823, the author had several conversations with the Doctor, by special request, in reference to this subject, in which he unfolded his leading ideas on what he considered the true principles of education and the improvements that required to be introduced, which in general met the Doctor's approbation, and appeared to coincide with the views he had lately adopted on the subject. He showed the author, at the same time, a variety of natural and artificial objects, which he had partly purchased, and partly received as donations from certain benevolent ladies, with the view of introducing them as part of an improved system of tuition which he intended soon to establish; and urgently requested him to continue his disquisitions on education, in the Christian Instructor, at certain moderate intervals between the appearance of the different essays, in order that the subject might be kept for some time before the view of the public. The intended communications, owing to certain circumstances, were never published; but the substance of what was then intended to be communicated will be found in the following pages. —The schools established by Dr. Thomson, alluded to above, along with the Edinburgh Sessional school, under the superintendence of Mr. Wood, are material improvements on the usual mode of scholastic instruction, and though deficient in many important particulars, approximate, in a considerable degree, to the true intellectual mode of tuition.

The strictures thrown out in the preceding pages, more particularly apply to the parochial and other schools in Scotland, for the instruction of the middle and lower classes; but most of them are likewise applicable to the general modes of tuition in England. Since the period stated above, when they were first written, a few schools, on more improved plans, have been established; but their number does not, perhaps, exceed twenty or thirty throughout the whole of North Britain; so that the preceding remarks will still apply to the modes of instruction generally practised in our country.

CHAPTER III.

Hints in reference to a comprehensive and improved system of Education.

THE *education* of human beings, considered in its most extensive sense, comprehends every thing which is requisite to the cultivation and improvement of the faculties bestowed upon them by the Creator. It ought to embrace every thing that has a tendency to strengthen and invigorate the animal system—to enlighten and expand the understanding—to regulate the feelings and dispositions of the heart—and, in general, to direct the *moral* powers in such a manner as to render those who are the subjects of instruction happy in themselves, useful members of society, and qualified for entering on the scenes and employments of a future and more glorious existence. The series of instructions by which these ends are to be attained, ought to be continued, not merely for five or six years, or less than the tenth part of the period of human existence—but *during the whole of that interval which lies between the cradle and the grave.*

It is a very common but absurd notion, and has been too long acted upon—that the education of our youth terminates, or should terminate, about the age of thirteen or fourteen years. Hence in an article on this subject, in one of our Encyclopedias, Education is defined to be " that series of means by which the human understanding is gradually enlightened, between infancy and the period when we consider ourselves as qualified to take a part in active life, and, *ceasing to direct our views to the acquisition of new knowledge or the formation of new habits*, are content to act upon the principles we have already acquired." This definition, though accordant with general opinion and practice, is certainly a very limited and defective view of the subject. In the ordinary mode of our scholastic instruction, education, so far from being *finished* at the age above stated, can scarcely be said to have *commenced*. The *key* of knowledge has indeed been put into the hands of the young; but they have never been taught to unlock the gates of the Temple of Science, to enter within its portals, to contemplate its treasures, and to feast their minds on the entertainments there provided. Several moral rules and maxims have been impressed on their memories; but they have seldom been taught to appreciate them in all their bearings, or to reduce them to practice in the various and minute ramifications of their conduct. Besides, although every rational mean were employed for training the youthful mind till near the age of puberty, no valid reason can be assigned why regular instruction should cease at this early period. Man is a progressive being; his faculties are capable of an indefinite expansion; the objects to which these faculties may be directed are boundless and infinitely diversified; he is moving onward to an eternal world, and, in the present state, can never expect to grasp the universal system of created objects, or to rise to the highest point of moral excellence. His tuition, therefore, cannot be supposed to terminate at any period of his terrestrial existence; and the course of his life ought to be considered as nothing more than the course of his education. When he closes his eyes in death, and bids a last adieu to every thing here below, he passes into a more permanent and expansive sphere of existence, where his education will likewise be progressive, and where intelligences of a higher order may be his instructors; and the education he received in this transitory scene, *if it was properly conducted*, will form the groundwork of all his future progressions in knowledge and virtue throughout the succeeding periods of eternity.

There are two very glaring defects which appear in most of our treatises on education. In the first place, the *moral* tuition of youthful minds, and the grand principles of religion which ought to direct their views and conduct, are either entirely overlooked, or treated of in so vague and general a manner, as to induce a belief that they are considered as matters of very inferior moment; and, in the business of teaching, and the superintendence of the young, the moral precepts of Christianity are seldom made to bear, with particularity, upon every malignant affection that manifests itself, and every minor delinquency that appears in their conduct—or to direct the benevolent affections how to operate in every given circumstance, and in all their intercourses and associations. In the next place, the idea that man is a being destined to an immortal existence, is almost, if not altogether overlooked. Volumes have been written on the best modes of training men for the profession of a soldier, of a naval officer, of a merchant, of a physician, of a lawyer, of a clergyman, and of a statesman; but I know of no treatise on this subject which, in connection with other subordinate aims, has for its grand object to develop that train of instruction which is most appropriate for man considered as a candidate for immortality. This is the more unaccountable, since, in the works alluded to, the eternal destiny of human beings is not called in question, and is sometimes referred to as a general position which cannot be denied—yet the means of instruction requisite to guide them in safety to their final destination, and to prepare them for the employments of their everlasting abode, are either overlooked, or referred to in general terms, as if they were unworthy of particular consideration. To admit the doctrine of the immortality of the human soul, and yet leave out the consideration of it, in a system of mental instruction, is both impious and preposterous, and inconsistent with the principle on which we generally act in all other cases, which requires, that affairs of the greatest moment should occupy our chief attention. If man is only a transitory inhabitant of this lower world, if he is journeying to another and more important scene of action and enjoyment, if his abode in this higher scene is to be permanent and eternal, and if the course of instruction through which he now passes has an important bearing on his happiness in that state, and his preparations for its employments—every system of education must be glaringly defective which either overlooks, or throws into the shade, the immortal destination of human beings.

If these sentiments be admitted as just, the education of the young must be a subject of the highest importance—and there cannot be an object more interesting to Science, to Religion, and to general Christian society, than the forming of these arrangements, and the establishing of those institutions, which are calculated to train the minds of all ranks to knowledge and moral rectitude, and to guide their steps in the path which leads to a blessed immortality. In this process there is no period of human life that ought to be overlooked—we must begin the work of instruction when the first dawning of reason begins to appear, and continue the process through all the succeeding periods of mortal existence, till the spirit take its flight to the world unknown.

In the following cursory observations, I shall, in the first place, offer a few general remarks on the proper training of the young during the earlier stages of life, and afterwards illustrate some of the modes of instruction which may be proper to be adopted in the more advanced stages of human existence. It may be proper, however, to premise, that I have no intention of presenting to the reader a detailed system of education, but only a few general hints in reference to the outlines of this important subject, and to the principles on which a system of rational tuition ought to be conducted.

SECTION I.—*On the Education of the Young during the period of Infancy.*

At the moment a child is ushered into the world, and first draws into its lungs the atmospheric air, it may be said to commence its education. What its sensations are, when it has emerged from the watery fluid with which it was surrounded, and inhales this new element, it is impossible to determine; but from the sounds which it utters, we may reasonably conjecture that they are attended with pain. It struggles and cries—hunger produces an uneasy sensation—it feels a want—that feeling opens its lips, and makes it seize and greedily suck the nourishing breast of its mother. At this period its eyes are generally dull and languid; it seems to keep them fixed and idle; they want that lustre which they afterwards acquire; and if they happen to move, it is rather an accidental gaze, than an exertion of the faculty of seeing. But, after some months have elapsed, its vision becomes distinct, its organs are fortified, and it becomes susceptible of various impressions from surrounding objects. Then the senses of seeing, hearing, tasting, touching, and smelling, begin to act with a certain degree of vigour; all the avenues to the mind are thrown open; the objects of nature and art rush in crowds to their respective organs of sensation, and engrave an indefinite assemblage of ideas upon the mind, though perhaps with a certain degree of irregularity and confusion. In this first stage of existence, the various sensations it feels, and the multifarious external objects it perceives, may be considered as so many instructors conveying the rudiments of knowledge to the infant mind.

As the infant advances in its new career, multitudes of objects of various descriptions begin to solicit its attention. A thousand sounds, of different degrees of intensity, and variously modified, strike its ears, producing various indescribable emotions; a thousand visible objects of diversified forms and colours present themselves to its visual organs, producing pleasure or pain, desire or aversion. By insensible degrees it learns to see and to hear—to mark the difference between one sound and another, and between one object of vision and another—to distinguish the form and countenance of its mother from those of other individuals, and to take an interest in some of the objects which compose the surrounding scene. Being uniformly struck with the same sensations and emotions in the presence of the same objects, its memory begins to be exercised, and it acquires a more accurate idea, and a more distinct remembrance of them, in proportion to the frequency with which these objects are presented to view. Its body, in the meantime, gradually expands, and becomes more firm, vigorous and alert. It crawls along the nursery or parlour, below tables and chairs, examining every object that falls in its way, and appears delighted in exerting its muscular powers. It tries to stand erect, and at length to walk; it tumbles and rolls on the floor, uttering screams of pain and disappointment. Numberless and repeated falls lead to more caution, and teach it to endeavour to preserve the equilibrium of its body, and to stand firmly on its legs; and the more frequent and painful the falls, the more instructive they prove, to teach it to balance its body, and to walk with adroitness and ease. Having acquired, after repeated exertions, a certain firmness of step, it runs from one place to another, eagerly intent upon new objects and pursuits, and feeling a delight in proportion as the range of its perceptions is increased. It tries to climb a stair, and, after repeated efforts, and exertions of hands and feet, succeeds in the attempt; but, when arrived at the top, and wishing to descend, it looks down to the bottom, and, remembering the falls it formerly experienced, feels a sense of danger, and screams for assistance.

The child (whom we shall now distinguish by the masculine pronoun) now runs about through the garden or in the fields, and perceives a variety of objects and operations. He sees a stone thrown into the water, and sink to the bottom; he sees a piece of wood or the leaf of a tree fall into the same water, and yet float on the surface; he amuses himself with numberless experiments of this kind, and from these he gradually acquires his first ideas of the specific gravity of bodies. If he take the stone and the wood out of the water, and by chance they fall upon his feet, he learns that the heavier body falls with more force than the lighter, from the unequal degree of pain occasioned by the fall, and has his mind impressed with the idea of their unequal hardness and weight. He strikes a table with a stick, and soon after, a pane of window glass with the same weapon; he perceives the glass broken to shivers, while the table remains as before, and thus learns the difference between substances that are hard, and those that are brittle, and that some bodies are broken with a blow which others can resist. He views with pleasure a brilliant light, and ventures to put his fingers to the blazing hearth, or to the flame of a candle, but feels a sudden sensation of acute pain, which warns him of the danger of using too much familiarity with fire, notwithstanding its alluring aspect. He sees a *cow, a dog*, or a cat, and is told *its name, and, after frequent* repetitions, he learns to connect the sound with the object which it is tended to represent. He sees a horse walking al a road, and afterwards its figure as represented in engraving, and soon learns to recognise the rese blance of the one to the other. In short, ev person with whom he is acquainted, every individ object of which he becomes fond—his rattles and bells, his drums and his whistles, his little coaches his jumping Jacks, may all be considered as so m instructors conveying lessons to his opening mind In acquiring the information such objects are cal lated to afford, *repeated exertions of the understand* must necessarily be made. The knowledge of particular object, as to its powers and qualities, c not be supposed to be attained without an effort si lar to that which an adult person must exert, wl investigating the laws of Nature, and the gen economy of the universe. For, every thing a cl sees or hears, in the first instance, all the marks characters of Nature, and the qualities and operati of surrounding objects, are as much unknown to l as the sciences of Philology, Mathematics and tronomy, to the untutored savage; and, consequen require a certain degree of attention and reason before the knowledge of them can be acquired.

The little student, however, prosecutes his obs vations and studies with apparent pleasure, with evident marks of industry, and soon acqu pretty correct notions of the nature and relati both of the inanimate and of the living world. learns to correct the illusions to which he was at f exposed—to distinguish one object from anotl and to exert his memory so as to know them ag and to recognise their general forms and qualities. It is amazing what a degree of knowledge a child has thus acquired before he arrives at the age of two years, or even twenty months. By this time he has made a thousand experiments on an indefinite variety of objects, all which he has arranged in his mind, and distinctly remembers. Light and heat, the properties of fire and flame, of water and air, the laws of projectiles and moving bodies, things sweet and bitter, soft and hard, rough and smooth, articulate sounds and the objects they denote, sounds soft or loud, agreeable or terrible; horses, cattle, dogs, asses, sheep, ducks, birds, butterflies, beetles, worms, the clouds, the sun, moon, stars, and numerous other objects—are all distinguished, and many of their properties and relations indelibly imprinted on the mind. He has acquired more real knowledge during this short period, than he generally does, on the present plan of instruction, throughout the eight or ten succeeding years of his life; and it is a striking instance of the Benevolence of the Creator, and a prelude of the vast extent of knowledge he is afterwards capable of acquiring, that all these acquisitions are not only made without pain, but, in the greater number of instances, are accompanied with the highest pleasure and enjoyment.

In the process of instruction, now described, during the first two years of human existence,—although Nature is the principal instructress, yet she frequently requires to be guided by the hand of Art; and much is left to the judicious attentions of parents and guardians, that her benevolent designs may not be thwarted, and that her efforts may be conducted to their proper ends. In throwing out a few hints on this point, our remarks may be arranged under the following heads—Physical, Moral, and Intellectual Education.

1. *The Physical Education of Infants.*

The influence of physical education during infancy, on the future happiness of the individual, is much greater, and more extensive in its consequences, than is generally imagined. A proper attention to food, climate, cleanliness, air and exercise, may have an important effect, not only in developing the different parts of the body, and strengthening the animal system, but also in invigorating, and calling forth into exercise, the powers of the mind. We find, in advanced life, that the state of the body as to health or sickness, has a powerful influence on the vigour of the intellectual faculties; and we have reason to believe that the same connection between the physical system and the development of mind exists in the most early period of life. A certain writer has observed that, " As the manifestations of mind depend on organization, it is conceivable why even talents and moral feelings depend on the influence of climate and nourishment."—In throwing out a few cursory remarks on this subject, I shall attend, in the first place, to

The food of infants. As soon as an infant is ushered into the world, Providence has provided for it food exactly adapted to its situation. The milk of the mother is at first of a thin, watery consistence, fitted to evacuate the meconium, and no other substance is found to be so efficacious for this purpose.

Syrups, wines, oils, honey, or rhubarb, which have been so frequently administered to new-born infants, by midwives and nurses, are repugnant to nature, and are condemned, except in extraordinary cases, by every medical practitioner. Children require very little food for some time after birth; and what they receive should be thin, weak, light, and of a cooling quality. After a few days the mother's milk becomes thicker and more nutritious, and should form the principal nourishment of the child during the first three months. It appears to be the dictate of nature, that every mother ought to suckle her own child, since she is furnished with the proper nutriment for this purpose; and nothing but downright necessity should prevent her from undertaking the task, or induce her to have recourse to a substitute. We might tell the mother who, without necessity, throws the care of her issue upon a stranger, that the admirable liquor which the God of Nature has provided for her child, may become mortal to her for want of a discharge, diffuse itself within, gather and stagnate, or, at least, bring on a dangerous fever—that there is a natural proportion between the blood that runs in the veins of a child, and the milk it receives from its mother—that to receive the caresses, to enjoy the smiles, and to mark the gradual progress of her child towards maturity, would be more than a compensation for all the fatigues she would undergo in watching over its infant years—that the mutual affection of a mother and her child depends, in no inconsiderable degree, on the child's spending the period of its infancy in its mother's arms—and that, when she substitutes *another* in her place, the towns, where the poorer class of inhabitants live in low, dirty, confined houses, and narrow lanes, where pure air has seldom access, the want of wholesome air often proves destructive to their offspring; and those of them who arrive at maturity are most frequently weak and deformed. In the improvements now going forward in society, it would be of vast importance to the health and comfort of the labouring classes, that such dwellings were completely demolished, and for ever prevented from again becoming the habitations of men.

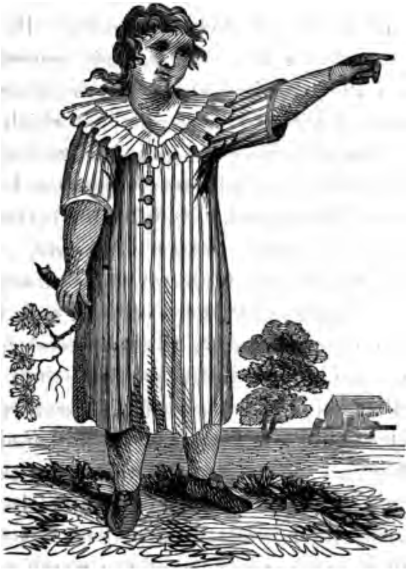
In connection with air, the influence of *light* ought not to be overlooked. Almost all organized bodies require the influence of light for their health, and the full development of their parts and functions. It changes the colour of plants and animals, and the complexion of man. As plants when deprived of light grow pale, and insects confined to dark places remain white, so those who spend their lives in their closets, or in gloomy apartments, acquire a pale and yellowish complexion, and many sickly persons become worse about sunset, and during the continuance of night. Hence the propriety of nursing children in light and cheerful apartments, and of carrying them frequently into the fields, to enjoy the full influence of the radiant sun. And hence it follows, that dark habitations, close and narrow lanes, houses sunk beneath the level of a street, small windows, sombre walls, trees immediately in the front of dwellings, and whatever intercepts the light of heaven from the habitations of men, must damp the animal spirits, and prove noxious to the vigour of the human frame. Whereas, a full and uninterrupted view of the beauty, the variety, and the lively colours, of the scenes of nature, has the happiest effects on the temper, and a tendency to exercise and invigorate the powers of the mind;—for there can be little doubt, that the faculties of the understanding, and the dispositions of the heart, which characterize the individual in the future part of his life, acquire their particular bias and distinguishing features from the circumstances in which he is placed, and the objects with which he is surrounded, in early life.—It may not be improper to add, that, as the eyes of very young children are delicate, they should not at once be exposed to a strong light; and, when they advance, as they are eager to stare at every thing, particularly at a brilliant light, their eyes should be turned so as to have the object in a straight line before them, or their backs turned directly to it. To allow them to look at it sideways, or with one eye, would teach them a habit of *squinting*.

Few things are of more importance to the health and comfort of children than *cleanliness*. The functions of the skin are of peculiar importance in the animal system, and have a great influence in preserving the health and vigour of the corporeal frame. Through its millions of pores, the insensible perspiration is incessantly flowing, and more than the one-half of what we eat and drink is in this way discharged. Hence the danger which must arise from frequent obstruction of this essential function from wet, excrements, dirty linens, and every kind of uncleanliness. From want of attention to this circumstance, various diseases of the skin, eruptions, catarrhs, coughs, the itch, obstructions of the first passages, and even many fatal disorders, derive their origin. It is injurious both to the health and the virtue of man; it stupifies the mind, sinks it into a lethargic state, deprives him of animal enjoyment, and of the esteem and regard of others. Whereas cleanliness promotes both health and virtue, clears the understanding, encourages to cheerfulness and activity, prevents many loathsome maladies, and procures the attachment and esteem of associates. Hence the incessant and minute attention which ought to be paid to this circumstance, by parents and nurses, in the rearing of the young. Cleanliness in domestic life, may be considered as one of the cardinal virtues, as an essential requisite in the physical education of children, and, perhaps, the only province of parental care in which they can never do *too much.* The pores of the skin should be kept open by washing the body, and changing the clothes and linen whenever they are unclean. In the first instance, children may be bathed in lukewarm water, and afterwards with water of a colder temperature, as they are able to bear it. Some parts of the body, such as the interior of the legs, the folds of the neck, the arm-pits, and the parts behind the ear, which are liable to be inflamed, demand particular attention. The nose, likewise, should be occasionally washed and thoroughly cleaned; it having been found, that the unpleasant smell peculiar to some infants, is owing to the habitual neglect of cleaning that organ. Great attention ought to be paid to children in regard to their evacuations; and every thing that may occasion dampness, and every kind of offensive matter that might adhere to the skin, should be speedily removed. As children are liable to perspire more than adults, frequent change of their linen is a matter of some consequence; and all parents who can afford it, should give them clean dry linen *every day.* It is as much the duty of parents to wash and clean their children, as it is to feed and clothe them; and children that are frequently washed and kept clean, gradually improve in health and vivacity; cleanliness becomes familiar to them, their spirits are enlivened, and they grow up virtuous, polite, and happy.

The Russians, with all their ignorance and rusticity of manners, are said to be superior to the more refined English, French, and Germans, both in a delicate sensibility of cleanliness, and in the practical use of the bath. A foreign gentleman, travelling in Russia, had hired one of the natives as his groom or postilion. After having travelled several days together in very sultry weather, the semi-barbarian, upon his knees, requested his employer to grant him leave of absence for two or three hours, to refresh himself with the luxury of a bath, which to him was indispensable, and the want of which he had long felt.—In Russia almost every house has its bath; and the peasants in that country possess a refinement of sense, with respect to the surface of the body, with which the most elegant ladies in other countries seem totally unacquainted. Even the American Indians, who cannot change their furs so frequently as we can do our clothes, put under their children the dust of rotten wood, and renew it as often as it becomes damp.

The *clothing* of children likewise requires some degree of *skill and attention.* This, indeed, is so simple a matter, that it is surprising that persons living in civilized countries should ever have erred so egregiously in regard to it; and yet it is a fact, that many children have been rendered deformed, and others have lost their lives, by the pride and folly of their parents in respect to this circumstance. The time has not long gone by, (if it have yet passed,) since a poor child, as soon as it breathed the vital air, had as many rollers and wrappers—sometimes ten feet in length—applied to its body, as if every bone had been fractured in the birth; and these were often drawn so tight, as to gall its tender frame, and even obstruct its vital organs—a piece of folly so repugnant to the dictates of nature, that even the most savage nations never commit it; and hence, deformed children are seldom or never found among them. By the weight and pressure of stays, bandages, heavy and tight clothes, children, who were well-proportioned at their birth, have afterwards appeared with flat breasts, high shoulders, crooked spines, and other deformities. For when a child is cramped in its clothes, it naturally shrinks from the part that is hurt, and puts its body into unnatural postures; and every part of it, even the bones themselves, being soft and flexible, deformity, of some kind or other, is the natural result. To this cause physicians have ascribed the numerous instances of children dying of convulsions soon after their birth.

The general rule which reason suggests, in regard to the clothing of children, is—"That a child have no more clothes than are necessary to keep it warm, and that they be quite easy for its body." In conformity to this rule, the dress of children should be simple, clean, light, and cheap—free, wide, and open, so as neither to impede the vital functions, nor the free and easy motions of the body, nor prevent the access of fresh air, and be easily put on or taken off. The following cut exhibits the simple dress of a little girl.—Pins should be used as little as possible, and the clothes chiefly fastened with strings, which would prevent the occasional scratching of their tender skins, and those alarming cries which so frequently proceed from this cause. Such a light and simple dress would induce children to live with less restraint in the society of each other; and check that silly pride, which leads them to ape the fashions of their *superiors, and to value* themselves on account



of the finery of their clothes. During the first months, the head and breast may be slightly covered; but as soon as the hair is sufficiently long to afford protection, there appears little necessity for either hats or caps, unless in seasons of rain or cold. By keeping the breast and neck uncovered, they acquire more firmness, are rendered hardier, and less susceptible of being affected with cold. Besides, a child has really a more interesting aspect, when arrayed in the beautiful simplicity of nature, than when adorned with all the trappings which art can devise. The following anecdote, related by Herodotus, illustrates the advantage connected with a cool regimen of the head. "After the battle fought between the Persians, under *Cambyses*, and the Egyptians, the slain of both nations were separated; and upon examining the heads of the Persians, their skulls were found to be so thin and tender, that a small stone would immediately perforate them; while, on the other hand, the heads of the Egyptians were so firm, that they could scarcely be fractured by the largest stones." The cause of this remarkable difference was attributed to the custom of the Egyptians shaving their heads from earliest infancy, and going uncovered in all states of the weather; while the Persians always kept their heads warm by wearing heavy turbans.

Attention ought likewise to be paid to the proper covering of the *feet.* It is scarcely necessary for children to use shoes before they are a year old; or if they do, the soles should be thin and soft. The form of the human foot is such, that, at the toes it is broad, at the heel narrow, and the inside of the foot is longer than the outside—a form which is evidently intended by Nature to enable us to stand and walk with firmness and ease. It is therefore a dictate of nature, that shoes should be made in the same form as the feet, and be sufficiently roomy for the toes to move with ease; and in order to this, they must be formed upon two separate lasts, corresponding to the right and the left foot. How shoes came at first to be made tapering to a point at the toes, almost like a bodkin—how high-heels became the darling fashion of the ladies—and how a small foot came to be reckoned *genteel*—I pretend not to determine; but certainly nothing can be more absurd and preposterous. Such opinions and practices, along with many others which abound, particularly in the fashionable world, have a direct tendency to counteract the benevolent intentions of Nature, and are nothing short of an attempt to arraign the wisdom of the Creator, in his arranging and proportionating the different parts of the human frame—as if puny man, by his foolish whims, were capable of improving the workmanship of Infinite Intelligence.—The following figures (taken from Dr. Faust) plainly show the absurdity of the shapes which have been given to shoes. Fig 1. shows the original shape of the sole of the left foot. Fig. 3. shows how the sole of the left shoe ought to be formed,—and Fig. 2. shows clearly that the shoes usually worn, and made on one last, cannot correspond to the natural shape of the foot. If they taper towards a point, the large toe, and some of the small ones, must be crushed and pressed against each other, causing pain to the wearer, and *producing corns*. *The simpl*est and most accurate mode of taking the true measure and form of shoes, is, to place each foot upon a sheet of paper, and then draw its shape with a pencil, to which two separate lasts should nearly correspond, after having ascertained the curve of the upper part of the foot.

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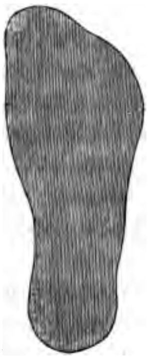

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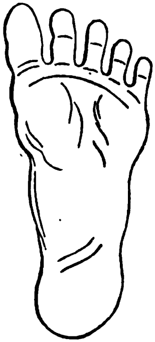

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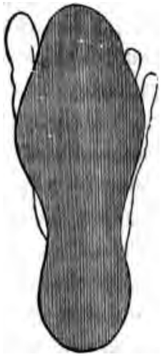

With regard to the clothing of children, in general, it is the opinion of Dr. Faust, that, from the beginning of the third, to the end of the seventh or eighth year, "their heads and necks must be free and bare, the body clothed with a wide shirt, and frock with short sleeves, the collar of the shirt to fall back over that of the frock, with the addition of a woollen frock, to be worn between the shirt and the linen frock, *during winter*, and that the feet be covered only with a pair of socks, to be worn in the shoes." Such a cheap and simple dress, if generally adopted, would undoubtedly be beneficial to mankind in general, and tend to promote the strength, beauty, and graceful attitudes of children,—and, at *the same time*, check the foolish propensity of parents to indulge their children in flimsy ornaments and finery, beyond what their means can afford. At present, children are frequently muffled up with caps, hats, bonnets, cravats, pelisses, frills, muffles, gloves, ribbons, and other paraphernalia, as if they were to be reared like plants in hotbeds,—so that the shape and beautiful proportions which Nature has given them can scarcely be distinguished. I shall only add, that the dress of children ought to be kept thoroughly *clean;* as dirty clothes not only gall and fret their tender skins, but tend to produce disagreeable smells, vermin, and cutaneous diseases; and no mother or nurse, however poor, can have any valid excuse for allowing her children to wallow in dirtiness.

We may next offer a remark or two on the *sleep* and *exercise* of children. The exercise of the corporeal faculties is essentially necessary to the health, the growth, and the vigour of the young. The desire of exercise is indeed coeval with our existence, which is plainly indicated in the delight which children take in beating with a stick, crawling along a floor, or climbing a stair, as soon as they are able to make use of their hands and feet. It is, therefore, the duty of parents to regulate this natural propensity, and direct it to its proper end. When children are very young, they may be exercised by carrying them about, giving them a gentle swing, encouraging them to move their hands and feet, talking to them, alluring them to smile, and pointing out every thing that may please and delight their fancy. When they first begin to walk, the safest method of *leading them about,* is by taking hold of both the hands; and when they fall, they should never be lifted up by one part only, such as by one hand or one arm, as luxations, or loosening of the joints, may be occasioned by this practice. The practice of swinging them in leading-strings, is sometimes attended with hurtful consequences. It induces them to throw their bodies forward, and press their whole weight upon their stomach and breast, by which their breathing is obstructed, and their stomach compressed. When they are able to walk with ease, they should be encouraged to run about in places where they are not exposed to danger, to exert their hands and limbs, and to amuse themselves in the company of their associates. When they cannot go abroad, they may be exercised in running along a room or a passage, or in leaping and dancing. A certain eminent physician used to say, "that he made his children dance, instead of giving them physic." When children fall, or get into any difficulty in the course of their movements, if they are in no danger, we should never be forward to express our condolence, or to run to their assistance; but leave them to exert their powers, and to scramble the best way they can, in order to extricate themselves from any painful situations in which they may have been involved. By being too attentive to them, and appearing too anxious, in such cases, we teach them to be careless of themselves;—by seeming to regard every trifling accident which befals them as a dreadful calamity, we inspire them with timidity, and prevent them from acquiring manly fortitude.

With regard to the *sleep* of children, it is *universally admitted*, that they require far more than persons of adult age; and the younger the child, the more sleep he requires. An adult requires only about seven hours in the twenty-four; but very young children require double that number. However long they may happen to sleep, they should never be suddenly awakened. It is dangerous in the extreme to lull them asleep by doses of laudanum, or other soporific medicines, as is frequently done by mercenary and indolent nurses. In order to induce children to repose, they are generally rocked in cradles; but there is no absolute necessity for resorting to this expedient. If they are constantly kept dry and clean, and accustomed to fresh air, and not frequently disturbed, they will sleep comfortably and soundly without any violent agitation. Some of my own children were never in a cradle, and yet they were far more easily managed, in respect to sleeping, and watching, and other circumstances, than those of them who were accustomed to it; and many similar instances, were it expedient, could be brought forward. But if they are to be *rocked* in cradles, it ought to be with the greatest gentleness. The violence with which children are sometimes rocked, jumbles their brain, and makes them uneasy, giddy, and stupid, and is consequently injurious, both to body and mind. If the practice of rocking, however, were altogether laid aside, it would be a great relief to mothers and nurses, and afford them more uninterrupted leisure for the performance of other domestic employments.—As it is viewed by some to be hurtful and dangerous for mothers to take their infants with them to bed,—in Italy, mothers who do so, *use a machine, which* protects them from all injury and danger. It is called *arcuccio*, and is 3 feet 2 inches long, and the head-board 14 inches broad, and 13 inches high.

I shall only observe further, on the subject of physical education,—that, when children begin to lisp out a few words, or syllables, *great care ought to be taken to give them an accurate and distinct pronunciation.* Every sound we wish them to pronounce, should be *slowly* and *distinctly* uttered before them, beginning with single sounds, and proceeding to easy words; and they should never be taught any pronunciation which they will afterwards be under the necessity of unlearning. The pleasure we feel at first hearing them aim at the use of language, is apt to dispose us to listen with such attention, as to relieve them from the necessity of acquiring a distinct and open articulation. The consequence is, that they get into a rapid, indistinct, and hesitating mode of speaking, which is afterwards very difficult, and sometimes impossible to correct. Would we teach them a plain and distinct articulation, we should uniformly speak with distinctness and accuracy in their presence; and refuse to answer their requests, unless they are expressed with the greatest precision and accuracy which their organs of articulation will permit. Attention to this circumstance would smooth the way to accurate and early reading, and prevent much trouble both to teacher and scholar, when the child commences a regular train of instruction.

I have been induced to offer these few hints on this subject, from a strong conviction, that the physical education of children is intimately connected with the development of mind—and that whatever tends to promote health, and to strengthen the animal frame, will also tend to invigorate the soul, and call forth into exercise its energies and powers.

2. *On the Moral Instruction of Infants.*

This is a subject of peculiar importance, to which the attention of every parent ought to be early and thoroughly directed. No duties are generally more trifled with than those which relate to the moral tuition of infants; and even sensible and pious parents too frequently err on this point, and lay the foundation of many bitter regrets and perplexities in after life, both to themselves and to their offspring. On the mode in which a child is trained, during the two or three first years of its existence, will, in a great measure, depend the comfort of its parents, and its own happiness during the succeeding periods of its existence.

The first and most important rule on this subject, and which may be considered as the foundation of all the rest, is—that *an absolute and entire authority over the child, should, as early as possible, be established.* By authority I mean, a certain air and ascendant, or such a mode of conducting ourselves towards children, as shall infallibly secure obedience. This authority is to be obtained neither by age nor stature—by the tone of the voice, nor by threatening language; but by an even, firm, moderate disposition of mind—which is always master of itself—which is guided only by reason—and never acts under the impulse of mere fancy or angry passions. If we wish such authority to be absolute and complete—and nothing short of this ought to be our aim—we must endeavour to acquire this ascendancy over the young *at a very early period of their lives.* Children at a very early age are capable of reasoning, of comparing different objects with each other, and of drawing conclusions from them. I have seen a child of eight months turn round and point at a portrait, when the name of the individual whom it represented was announced; and another, not much older, point first to the original and then to the painting, indicating its perception of the resemblance of the one to the other. And as the rational and perceptive powers soon begin to operate, so we find that stubbornness, obstinacy, anger, and a spirit of independence, display themselves at a very early period, even when the child is sucking its mother's breast. "What mean those cries, (says Augustine,) those tears, the threatening gesture of the eyes, sparkling with rage, in an infant, when resolved to gain his point with all his force, or inflamed with jealousy against one another? Though its infantine members are weak and imbecile, its passions are sometimes strong and furious. I have seen a child burning with jealousy. He could not yet utter a word, but, with a pale countenance, could cast a furious look at another child who was sucking with him at the same breast."

These circumstances clearly point out the period for subduing the bad inclinations of children, and training them to submission and obedience. From the age of ten or twelve months, and earlier if possible, every parent ought to commence the establishment of authority over his children; for the longer it is delayed after this period, the more difficult it will be to bring them under complete control. This authority is to be acquired—not by passionately chiding and beating children at an early age—but by accustoming them to perceive *that our will must always prevail over theirs*, and in no instance allowing them to gain an ascendancy, or to counteract a command when it has once been given. Dr. Witherspoon recommends the following plan to accustom children to obedience:—“As soon as they begin to show their inclination by desire or aversion, let single instances be chosen, now and then, (not too frequently,) to contradict them. For example, if a child shows a desire to have any thing in his hand that he sees, or has any thing in his hand with which he is delighted, let the parent take it from him; and when he does so, let no consideration whatever make him restore it at that time. Then, at a considerable interval, perhaps a whole day is little enough, let the same thing be repeated. In the meantime, it must be carefully observed, that no attempt should be made to contradict the child in the intervals. Not the least appearance of opposition, if possible, should be found between the will of the parent and that of the child, except in those chosen cases when the parent must always prevail. Neither mother nor nurse should ever presume to condole with the child, or show any signs of displeasure at his being crossed; but, on the contrary, give every mark of approbation. This experiment, frequently repeated, will in a little time so perfectly habituate the child to yield to the parent whenever he interferes, that he will make no opposition. I can assure you from experience, having literally practised this method myself, that I never had a child of twelve months old but would suffer me to take any thing from him or her, without the least mark of anger or dissatisfaction, while they would not suffer any other to do so without the bitterest complaints."

Such experiments, if properly conducted, would gradually produce in children habits of obedience; but they require to be managed with judgment and prudence, and gradually extended from one thing to another, till absolute submission is produced; care, however, being taken that the child be not *unnecessarily* contradicted or irritated. The Rev. Mr. Cecil, in some of his writings, relates an experiment of this kind which he tried on his own daughter, a little girl of about three or four years old. She was standing one day before the fire, amusing herself with a string of beads, with which she appeared to be highly delighted. Her father approached her, and said, "What is this you are playing with, my little dear?" "My beads, papa." "Show me these beads, my dear." She at once handed them to her father, who immediately threw them into the fire. "Now," said he, "let them remain there." She immediately began to cry. "You must not cry, my dear, but be quite contented." She then sat down on the floor, and amused herself with some other toys. About two or three days after this, he purchased another string of beads much more valuable and brilliant, which he immediately presented to her. She was much delighted with the appearance of the new set of beads. "Now," said her father, "I make a present of these to you, because you was a good girl, and gave me your beads when I asked them."

She felt, in this case, that obedience and submission to her parent were attended with happy effects, and would be disposed, in her future conduct, to rely on his wisdom and affection.* Children trained in this way, with firmness and affection, soon become happy in themselves, and a comfort to their parents; and those scoldings, contentions, and sounds of discord, so frequently heard in the family mansion, entirely prevented.

In order to establish complete authority, and secure obedience, the following rule must be invariably acted upon—that *no command, either by word, look, or gesture, should be given, which is not intended to be enforced and obeyed.* It is the rock on which most parents split, in infantile education, that, while they are almost incessantly giving commands to their children, they are not careful to see that they are punctually obeyed; and seem to consider the occasional violation of their injunctions, as a very trivial fault, or as a matter of course. There is no practice more common than this, and none more ruinous to the authority of parents, and to the best interests of their offspring. When a child is accustomed, by frequent repetitions, to counteract the will of his parent, a habit of insubordination is gradually induced, which sometimes grows to such a height, that neither entreaties, nor threats, nor corporal punishment, are sufficient to counteract its tendencies; and a sure foundation is laid for many future perplexities and sorrows. The rule, therefore, should be absolute—that every parental command ought to be enforced. And, in order to this, it is requisite that every command be *reasonable*—that a compliance with it produce no *unnecessary* pain or trouble to the child—that it be expressed in the words of *kindness* and *affection*—and that it ought never to be delivered in a spirit of *passion* or *resentment*. Reproof or correction given in a rage, and with words of fury, is always considered as the effect of weakness and of the want of self-command, and uniformly frustrates the purpose it was intended to subserve. "I have heard," says Dr. Witherspoon, "some persons often say, that they cannot correct their children unless they are angry; to whom I have usually answered, 'Then you ought not to correct them at all.' Every one would be sensible, that for a magistrate to discover an intemperate rage in pronouncing sentence against a criminal, would be highly indecent; and ought not parents to punish their children in the same dispassionate manner?"

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* This relation is not taken directly from Mr. Cecil's writings. If I recollect right, it was intended to illustrate the nature of *faith;* but it may likewise exemplify the benefits which flow from unreserved obedience to the commands of an affectionate parent.

One of the greatest obstacles in the way of acquiring complete authority, is *the want of fortitude and perseverance*, especially on the part of the mother. She is sometimes oppressed with anxieties and difficulties, busied with domestic affairs, or perhaps has a young infant at the breast that requires her chief attention, or strangers may have paid a visit to the family. Her older child becomes restless and fretful, and runs through the dwelling, disturbing every one with his cries. She tries to coax him with flattering promises; but it is of no avail. He is perhaps crying for something which she does not think proper to give. She at length scolds and threatens, and attempts to strike, which generally makes the child redouble his cries. Wearied out, at length, with his cries and tears, and anxious to attend to some necessary affairs, she allows herself to be vanquished, and submits to his desires. Sugar, jellies, or plumcakes, are supplied to pamper his depraved appetite, and put an end to his crying; and, being exhausted with screaming, in a short time he drops asleep. The same process is repeated, when similar circumstances occur. Now, it is admitted that there is a difficulty in such cases; but it is a difficulty which *must* be overcome, if we would not become slaves to our children, and render them disobedient and unhappy through life. Were a mother, for a few days, or weeks at most, to make a strong effort, and to sacrifice for a little her own ease, and even some urgent business, and never flinch from the object till complete submission be accomplished, she would soon gain the requisite ascendancy; and, having acquired it, it would save her from a multitude of troubles and perplexities, which must otherwise be felt during succeeding years—prevent the necessity of scolding, threatening, and whipping—and lay a sure foundation for domestic harmony and filial affection. But the longer she delays, the more difficult it will be to acquire the requisite ascendancy; and the mother who trifles with this important duty, from day to day, lays the foundation of many bitter regrets and self-reproaches—renders her children curses instead of blessings—and will, sooner or later, feel the effects of her misconduct, and behold her sin in her punishment.

The violation of parental authority, especially among the children of the lower ranks, is so common, that it ceases to excite wonder or surprise. One can scarcely walk the streets without seeing parental authority disregarded. A father is beheld with a whip or a stick in his hand, driving home his stubborn son, as if he were "a bullock unaccustomed to the yoke"—and a mother running after her child, with looks of fury and words of execration, seizing him by the shoulders, beating him with her fists, and dragging him along like a piece of lumber, while the little urchin is resisting with all his might, and bellowing like an ox. A short time ago, I was passing along the suburb of a large town, when I beheld a child of about three years old amusing himself on the footpath before his dwelling. His mother approached the threshold, and called him in. "Come awa', Jamie, to the house, it's a cauld day." Jamie paid no attention to the command, but moved with the utmost deliberation to a greater distance. "Come awa'," says his mother a second time, "and I'll gie ye some good thing." James, however, marched on to a still greater distance. "Come back, Jamie," rejoined the mother, "and I'll gie ye an apple." James paused for a moment, and looked back with a kind of leer; but, recollecting, perhaps, that his mother had often promised, and failed in performing her promises, he set off with more speed than before. His mother now became vociferous, and bawled out, "Come back, you little villain, or I'll whip you, as sure's I'm alive." James, however, who appeared to have known his mother better than she knew herself, still marched on. The foolish mother now became furious, rushed after the child, and dragged him home like a sqeaking pig, lamenting that her children were so stubborn and disobedient; and forgetting, in the meantime, that she herself was their instructor, and the cause of their obstinacy and disobedience. Children brought up in this manner are not only unhappy in themselves, but not unfrequently become pests in society, and particularly to the public instructors of youth, who find it extremely difficult, and sometimes next to impossible, to bring them under control and subordination to scholastic order and discipline—without which their progress in learning cannot be promoted.

Some children, even in the same family, are pliant and of tender feelings, and are easily brought under subjection by a judicious parent; while others are naturally proud, self-willed and obstinate. But even in the worst supposable cases, it is quite practicable, by firmness and prudent management, to bring the most sulky and stubborn under subjection. This may be illustrated from the following fact, extracted from an excellent little work, entitled "The Mother at Home, or the Principles of Maternal Duty familiarly Illustrated; by the Rev. John S. C. Abbot, of Worcester, America."*—"A gentleman, a few years since, sitting by his fireside one evening, with his family around him, took the spelling-book, and called upon one of his little sons to come and read. John was about four years old. He knew all the letters of the alphabet perfectly, but happened at that moment to be rather in a sullen humour, and was not at all disposed to gratify his father. Very reluctantly he came as he was bid; but when his father pointed to the first letter of the alphabet, and said, 'What letter is that, John?' he could get no answer. John looked upon the book, sulky and silent. 'My son,' said the father pleasantly, 'you know the letter A.' 'I cannot say A,' said John. 'You must,' said the father in a serious and decided tone; 'what letter is that?' John refused to answer. The contest was now fairly commenced. John was wilful, and determined that he would not read. His father knew that it would be ruinous to his son to allow him to conquer; he felt that he must at all hazards subdue him. He took him into another room, and punished him. He then returned, and again showed John the letter; but John still refused to name it. The father again retired with his son, and punished him more severely. But it was unavailing. The stubborn child still refused to name the letter; and when

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* While I was writing the preceding paragraphs this interesting little volume was put into my hands—a volume which I would *strongly recommend* to the perusal of every parent. Its style is simple and perspicuous, its sentiments rational and pious, and are uniformly illustrated with a variety of appropriate examples taken from real life—so that the most ignorant and illiterate may easily enter into all the views and representations of the author, and feel their propriety and force. Were the principles inculcated in this small volume *universally* recognised and acted upon, the aspect of the moral world would, ere long, undergo an important change, and a new generation would soon spring up, to renovate

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the world, and to hail the commencement of the millennial era. The amiable author himself appears to be an affectionate and "*Grateful Son*;" for, instead of attempting to curry favour with the great, by dedicating his work to the Earl of F. the Dutchess of G. or the President of the United States, he very appropriately dedicates it to his "*Father and Mother*," of whom he speaks with affectionate regard. The volume is very neatly got up, contains above 140 pages, pretty closely printed, and is sold, neatly bound, for only one shilling; so that it is within the reach of the poorest family.

told that it was A, declared that he would not say A. Again the father inflicted punishment as severely as he dared to do it, and still the child, with his whole frame in agitation, refused to yield. The father was suffering with most intense solicitude. He regretted exceedingly that he had been drawn into the contest. He had already punished his child with a severity which he feared to exceed; and yet the wilful sufferer stood before him, sobbing and trembling, but apparently as unyielding as a rock. I have often heard that parent mention the acuteness of his feelings at that moment; his heart was bleeding at the pain which he had been compelled to inflict upon his son. He knew that the question was now to be settled, who should be master; and after his son had withstood so long and so much, he greatly feared the result. The mother sat by, suffering of course most acutely, but perfectly satisfied that it was their duty to subdue the child, and that, in such a trying hour, a mother's feelings must not interfere. With a heavy heart, the father again took the hand of his son, to lead him out of the room for further punishment; but, to his inconceivable joy, the child shrunk from enduring any more suffering, and cried, 'Father, I'll tell the letter.' The father, with feelings not easily conceived, took the book and pointed to the letter. 'A,' said John, distinctly and fully. 'And what is that?' said the father, pointing to the next letter. 'B,' said John. 'And what is that?' 'C,' he continued. 'And what is that?' pointing again to the first letter. 'A,' said the now humbled child. 'Now carry the book to your mother, and tell her what the letter is.' 'What letter is that, my son?' said his mother. 'A,' said John. He was evidently perfectly subdued. The rest of the children were sitting by, and they saw the contest, and they saw where was the victory; and John learned a lesson which he never forgot: he learned never again to wage such an unequal warfare—he learned that it was the safest and happiest course for him to obey."

The conduct of the parent, in this case, so far from being branded with harshness or cruelty, was the dictate of mercy and love. Had the son been permitted to obtain the mastery, it might not only have proved his ruin through life, but have introduced a spirit of insubordination among the other branches of the family. The only fault which, perhaps, may be attributed to the father, in the present instance, was his insisting on his son pointing out the letters when he happened to be in a "*sullen humour.*" But, after the contest was commenced, it was indispensable to the happiness and order of the family, that victory should be obtained on the part of the parent. And this circumstance suggests the following rule,—that, *When children happen to be in a fretful or sulky humour, any disagreeable command or injunction that is not indispensable, ought to be avoided;* for it is best to prevent collisions of this kind, at a time when children are disposed to "summon up all their energies to disobey."

Another important maxim in infantile instruction is, *that nothing be told or represented to children but what is strictly accordant with truth.* This maxim is violated in thousands of instances by mothers and nurses, to the manifest injury of the moral principles and the intellectual powers of the young. The system of nature is frequently misrepresented, and even caricatured, when its objects are pointed out to children; qualities are ascribed to them which they do not possess; their real properties are concealed, and even imaginary invisible beings, which have no existence in the universe, are attempted to be exhibited to their imagination. The moon is sometimes represented as within reach of the child's grasp, when he is anxiously desired to take hold of it; a table or a chair is represented as an animated being, when he is desired to strike it in revenge, after having knocked his head against it; a dog or a cat is represented as devoid of feeling, when he is encouraged to beat or whip these animals for his amusement; certain animated beings are represented as a nuisance in creation, when a boy is permitted to tear asunder the legs and wings of flies, or directed to crush to death every worm or beetle that comes in his way; and the shades of night are exhibited as peopled with spectres, when a child is threatened with a visit of a frightful hobgoblin from a dark apartment. In these and similar instances, not only is the understanding bewildered and perverted, but the moral powers are corrupted;—falsehood, deceit, a revengeful disposition, cruelty towards the lower animals, superstitious opinions and vain alarms, are indirectly fostered in the youthful mind. Even the pictorial representations which are exhibited to children in their toy-books, too frequently partake of this character. The sun and moon are represented with human faces, as if they were small and insignificant objects, and partook of the nature of animated beings. Peacocks and cranes, foxes and squirrels, cats and mice, are represented in the attitude of speaking and of holding conversation with each other, as if they were rational beings endowed with the faculty of speech. A monkey is represented as riding on a sow, and an old woman, mounted on a broom, as directing her course through the air to the moon. Even when real objects are intended to be depicted, such as a horse, an elephant, or a lion, they are often surrounded and interwoven with other extraneous objects, so that the principal figure intended to be exhibited can scarcely be distinguished. Hence, most of our books intended for the nursery, convey little else than vague and distorted views of the objects of nature and the scenes of human life, and are nothing short of trifling with the ideas that ought to be distinctly exhibited to the infant mind.* If children were permitted to imbibe no ideas but what are true, or accordant with the existing scenes of nature, their progress in useful information would be rapid and sure, and its acquisition easy and pleasant. But, as matters now stand, one of the most difficult parts of education consists in *counteracting* the immoral principles and erroneous ideas which have been impressed upon the mind in early life—which, in many cases, requires arduous and long-continued efforts.

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* A considerable degree of knowledge may be communicated to the young by means of pictorial exhibitions; but in order to this, they must be of a different description from what is found in most of our school-books and publications intended for the nursery. Instead of caricatures, and indistinct groups of objects unnaturally huddled together, every object ought to be neatly, vividly, and accurately engraved, and the principal figures well-defined and detached from mere adventitious accompaniments; and, if possible, coloured after nature.—The best little books and figures of this description I have seen, are most of those published by Darton and Harvey, London, entitled, "Instructive Hints," "The Prize for Good Children," "Little Truths for the Instruction of Children," &c. &c. in which the scenes of human life are neatly and accurately exhibited, and accompanied with many instructive lessons adapted to the capacities of youth.

It has a still more pernicious effect on the moral principles of the young, when false assertions and representations are made to them in reference to facts and circumstances of a moral nature. How common is it, for example, for a mother to cajole a child into obedience by promising him an article or a gratuity which she has no intention of bestowing, or which, perhaps, it is out of her power to bestow! She is about to take a walk, or to pay a visit, and little Tom wishes to go along with her. This proposal his mother thinks proper to refuse. Tom begins a crying, and attempts to assail his mother by his tears. She tries to cajole him, by telling him she will bring home to him apples and oranges, a little coach and four, a fiddle, a drum, or a fine new jacket. Little Tom, perhaps, is somewhat appeased by such flattering promises. His mother leaves home, pays her visit and returns, but forgets her promises, as she never intended to fulfil them. The same thing is frequently repeated, till at length the child learns that no dependence is to be placed on the word of his parent. There can scarcely be a more direct way than this of training children to prevarication and falsehood, and exciting them to view with contempt their parents and guardians.—Such deceptions are very commonly attempted, when children are urged to take nauseous medicines for the recovery of their health. The loathsome drug is represented as pleasant, or in nowise unpalatable, till the child tastes it, and, finding it offensive to his palate, spits it out, and absolutely refuses to take any more of the draught—while at the same time he clearly perceives that he has been deceived. Mr. Abbot relates the following story, illustrative of this point:—" A mother was once trying to persuade her little son to take some medicine. The medicine was very unpalatable, and she, to induce him to take it, declared it did not taste bad. He did not believe her. He knew by sad experience that her word was not to be trusted. A gentleman and a friend who was present took the spoon and said, 'James, this is medicine, and it tastes badly. I should not like to take it, but I would if necessary. You have courage enough to swallow something which does not taste good, have you not?' 'Yes,' said James, looking a little less sulky, 'but that is very bad indeed.' 'I know it,' said the gentleman, 'I presume you never tasted any thing much worse.' The gentleman then tasted of the medicine himself, and said, 'It is very unpleasant. But now let us see if you have not resolution enough to take it, bad as it is.' The boy hesitatingly took the spoon. 'It is bad,' said the gentleman, 'but the best way is to summon all your resolution, and down with it at once, like a man.' James made, in reality, a great effort for a child, and swallowed the dose. And whom will this child most respect, his deceitful mother, or the honest-dealing stranger? And whom will he hereafter most readily believe? It ought, however, to be remarked, that, had the child been properly governed, *he would* at once, and without a murmur, *have taken what his* mother presented."

Hence the following practical rules may be deduced:—*Never attempt in any instance to deceive the young.* How can a parent, with any consistency or hope of success, inculcate upon a child, that 'it is wicked to tell a falsehood,' when the child perceives his parent setting before him, in his own conduct, an example of this vice? Such conduct necessarily leads a child to distrust his parents, to despise them in his heart, and to practise himself the same arts of deception.—*Never make a promise to a child which is not intended to be punctually performed;* and—*Never threaten a punishment which is not intended to be inflicted.* Children have better memories in regard to these things than what we are apt to suspect, and they draw their conclusions, and act accordingly. A proper consideration of these things will point out the propriety of *being very cautious and circumspect as to what we promise and what we threaten in respect to the young,*—if we sincerely wish them to respect truth, and be submissive to their superiors and instructors.

Another rule to be attended to in infant education, is, that—*we should beware of indulging the habit of incessantly finding fault with children.* The same principles and feelings which operate on adult minds are generally found to affect, in a similar manner, the minds of the young. When a man is continually found fault with, in every operation he performs,—when his most minute deviations from accuracy are censured and exaggerated, and his prominent excellencies overlooked, and refused their due meed of praise, he becomes disheartened in his pursuits, and *feels little stimulus to* improvement; whereas, the bestowment of deserved approbation animates the mind, and excites to more assiduous exertions. In like manner, children are discouraged in their aims to please their parents and guardians, when fault is found with almost every thing they do; but there is nothing that tends more to cheer and animate the mind of a child, and to produce a desire of pleasing his parents, than the hope of receiving the due reward of his attentions, and the smile and approbation of those whom he is taught to love and obey. Many little irregularities in the conduct of children, if they be not directly vicious, or acts of disobedience, must be overlooked; or if they are reproved, it should be as seldom as possible, and with gentleness and affection. We should always be more ready to express approbation, and to reward good conduct, than to chide and frown at every trivial fault that may be committed through thoughtlessness and inattention. And it is surely more delightful to the heart of an affectionate parent to have his children excited to good conduct from the desire of pleasing and the hope of reward, than merely from a fear of offending. But when children are almost incessantly scolded—when, after endeavouring to do the best they can, they are told that they never do any thing right—that they are stupid asses—that they will never be made to learn—that they are continually giving us trouble and vexation—that they are like no other children, and that we will give over attempting to teach them,—such disheartening remonstrances, when daily repeated, tend to chill the susceptible hearts of the young, to sour their dispositions, and to render them indifferent to making improvement either in knowledge or virtue. On the other hand, nothing tends more to promote filial affection, cheerful obedience, a spirit of improvement, and to cherish the best feelings of the human heart, than the prospect of well-merited approbation, and the hope of reward.

Every child should be made to see and feel the natural consequences of his conduct, whether good or bad:—and the punishments and rewards he receives should be of such a nature as to make him perceive the unhappy tendency of thoughtless and obstinate tempers, and the happiness which invariably results from obedient submission, and the exercise of amiable dispositions. There are certain natural and moral laws which cannot be infringed by any one without his feeling the consequences of their violation; and this holds true in the case of children, as well as in that of adults. When a child rushes heedlessly into a room, without looking before him, he is almost certain of getting a fall, or knocking his head against a table. When he climbs on the back of a chair, when he approaches too near the grate, amuses himself with a firebrand, or handles, without caution, knives and forks—he is certain, sooner or later, by various pains and accidents, to feel the consequences of his conduct; and in such cases he should be made distinctly to perceive the *connection* between his fault and his punishment.

But, in the next place, although we should beware of constantly finding fault with children, *we must carefully guard against every thing that might excite them to vanity and self-conceit.* We encourage such vicious propensities, when we expatiate on their good qualities to visitors, and praise them for the excellent things they have said or done, *while they themselves are standing by*, and eagerly listening to the conversation. At such times we are apt to forget, that they are paying strict attention to every thing that is said, and drinking in with pleasure the flattering expressions bestowed upon them. One should never speak in the presence of children about any thing which he does not wish them to know, if they are above fifteen or twenty months old. It is amazing how soon children become acquainted with the meaning of language, even before they are capable of expressing their ideas in words, or entering upon a regular conversation. " A little child," says Mr. Abbot, " creeping upon the floor, and who could not articulate a single word, was requested to carry a piece of paper across the room, and put it in a chair. The child perfectly comprehended the direction, and crept across the room, and did as he was told. An experiment or two of this kind will satisfy any one how far a child's mind is in advance of his power to express his ideas; and yet when a child is three or four years old, parents will relate in their presence shrewd things which they have said and done, and sometimes even their acts of disobedience will be mentioned with a smile !"—Another circumstance by which pride and self-conceit are excited in the breasts of the young, is, the conduct of parents in exhibiting the acquirements of their children to strangers, and to almost every visitor that happens to call. Little Ann has been taught to repeat by rote a few verses of a Psalm or hymn, and Andrew, a little more advanced in years, has learned Sempronius' " Speech for War," or a piece of an old play. Although they know nothing of the meaning of the pieces they have committed to memory, and cannot, perhaps, annex a single idea to the words they pronounce, yet their mamma is so enraptured with their attainments, that when any visitors happen to call, or a party is assembled, she introduces them to the company, and encourages them to *spout* in their presence, sometimes to their no small disgust and annoyance. Of course, every one pats them on the head, and praises them for the exhibition they have made, while they eagerly catch the words of approbation, to nurse their latent vanity and self-conceit. Such exhibitions, when frequently repeated, cannot but have an injurious effect on the youthful mind. Pride and self-conceit, however common in society, are so odious, and so inconsistent with the character and circumstances of man, that instead of fostering such unamiable principles, every exertion should be made to check their growth, and counteract their influence. And modesty and humility are so amiable, and so congenial to beings so ignorant and depraved as man, —who is but an atom in creation, and stands near the lowest point of the scale of intellectual existence —that every thing ought to be carefully guarded against that would prevent their culture, and every mean used which has a tendency to cherish and promote them. I do not mean to insinuate, that it is improper, in every instance, to exhibit the attainments of children; but it should be done with judgment and caution, so that it may produce no immoral effects, or be the means of adding to the impudence and self-conceit which too much abound in the world. The practice of teaching children to repeat, like parrots, what they do not understand, ought to be entirely discarded. The best exhibition of a child's attainments would be, to make him read a passage from any of his toy-books, and give the meaning of the words, and an account of the facts or sentiments it contains.

To the rules on this subject, already stated, may be added the following:—*Never attempt to frighten children to their duty by presenting to their fancy terrific objects, and exciting imaginary alarms.* This rule is violated, when frightful hobgoblins are represented as having been seen in darkness, and during night, and when foolish tales of fairies, witches, and apparitions, are gravely related to children. And, when their minds are thus stuffed with confused ideas of imaginary objects, they are afterwards frightened into obedience by the terror of some of these visionary beings suddenly making their appearance. Darkness is thus associated with terrific phantoms, and children are sometimes thrust into dark and narrow rooms, to make them cease their crying, or to frighten them into obedience. It is not uncommon to hear nurses, and even foolish mothers, threatening to send for the '*black man*,' with cloven feet, and horns on his head—to cut off their children's heads, to toss them out of a window, or to send them to the black-hole. Such a mode of frightening children into obedience, not only lays the foundation of superstitious notions, and renders them afterwards cowards in the dark, but is sometimes attended with the most tragical effects. An English writer, says Mr. Abbot, gives an account of two instances in which fatal consequences attended the strong excitement of fear. He says, "I knew in Philadelphia a child, as fine and as sprightly, and as intelligent a child as ever was born, made an idiot for life, by being, when about three years old, shut into a dark closet by a maid-servant, in order to terrify it into silence. The thoughtless creature first menaced it with sending it to 'the bad place,' as the phrase is; and at last, to reduce it to silence, put it into the closet, shut the door, and went out of the room. She went back in a few minutes, and found the child in a fit. It recovered from that, but was for life an idiot."—"It is not long since we read in the newspapers of a child being killed by being thus frightened. The parents had gone out to what is called an evening party. The servants had their party at home, and the mistress, who, by some unexpected accident, had been brought home at an early hour, finding the parlour full of company, ran up stairs to see her child, who was about two or three years old. She found it with its eyes open, but fixed; touching it, she found it inanimate. The doctor was sent for in vain; it was quite dead. The maid affected to know nothing of the cause; but some one of the persons assembled discovered, pinned up to the curtains of the bed, a *horrid figure*, made up partly of a frightful mask! This, as the wretched girl confessed, had been done to keep the child quiet, while she was with her company below." It is surely unnecessary to add more, in order to deter parents and servants from practices fraught with such dangerous and appalling consequences. Let children be inspired both with physical and moral courage.

Let them be taught, that there is nothing more frightful in the dark than in the light of day, except the danger of knocking against any object we do not perceive. Let them be accustomed, at times, to be in the dark, both in company and alone, in the house, and in the open air, when there is no danger of meeting with accidents. Let them be taught, above all things, to love God and fear him; and that they need not be greatly alarmed at whatever may befal them from any other quarter.

In practising the rules now laid down, and in every branch of domestic education, it is a matter of the first importance, that fathers and mothers, nurses and servants, *should act in harmony* in the commands and instructions given to children. When a foolish mother, from a mistaken affection, indulges her children in their vicious humours and impertinent whims, and is careless whether or not parental authority be respected—it is next to impossible for a father, however judicious his plans, to maintain domestic order and authority, and to "train up his children in the way they should go." The altercations which not unfrequently happen between parents, as to the mode of managing their offspring, and that, too, in the presence of their children, subvert the very foundations of family government, and endanger the best interests of those whom they profess to hold dear. Little John has, perhaps, been for some time in a sulky humour; he has struck his sister, torn her frock, and tossed her doll into the fire, and obstinately refused to comply with some parental commands. His father wishes to correct him for his conduct, which his mother endeavours to prevent.

Punishment, however, is inflicted corresponding to the crime; but the silly mother, instead of going hand in hand with her husband in maintaining family-order,—exclaims against the severity of the correction, and, taking the child in her arms, caresses him, and condoles with him on account of the pain he has suffered—plainly indicating to the child that his father had acted towards him with cruelty and injustice. Wherever such conduct frequently recurs, domestic order is overthrown, the moral principles of the young corrupted, deceit and hypocrisy cherished, filial affection undermined, and a sure foundation laid for many future perplexities and sorrows. However much parents may differ in opinion about certain principles, or modes of conducting family affairs, it ought never to be displayed in the presence of their children; and, for the same reason, parents ought never to speak disrespectfully of any teacher they employ, while their children are listening to their remarks, whatever may be the private opinion they entertain respecting his qualifications or conduct.

3. *On the Intellectual Instruction of Infants.*

In regard to the *intellectual instruction* of infants, I have already thrown out a few cursory remarks, and shall afterwards illustrate more particularly a few principles applicable to this subject. In the meantime, the following brief hints may suffice.—As the senses are the primary inlets of all knowledge—every object, within view, in the system of nature, which has a tendency to convey a new idea, should be distinctly presented to the eyes of a child. He should be taught to contemplate it for some time with steadi-

ness and attention, and the sound or name by whic
it is distinguished frequently repeated to him. I
order gradually to enlarge the sphere of his inform
tion, the objects more immediately around him ma
in the first instance, be separately and distinctl
pointed out, uniformly accompanying the name wit
the exhibition of the object. He should next b
occasionally led into the fields, and to the banks
a river, the margin of the ocean, and a seaport,
such places lie adjacent, and his attention directed
the most prominent objects connected with tho
scenes; care being taken not to confuse his imagin
tion with too many objects at one time. Perha
it may be sufficient to confine his attention to abo
three or four objects at a time—such as a house,
tree, a cow, and a horse. To these his attenti
should be particularly rivetted, so that the *idea*
the object and its *name* may be inseparably co
nected, and indelibly impressed upon his min
Afterwards, other objects, as a ship, a boat, a spir
a flower, the clouds, &c. may, in the same manne
be presented to his view, varying the scene, a
gradually presenting new objects to his attentio
When he has thus acquired some knowledge of t
most interesting objects which compose the sce
around him, he may be desired to point out any pa
ticular object when its name is mentioned. Su
posing him in the fields, or on the banks of a riv
let him be desired to point to a tree, a sheep, or a bo
if such objects are within view; and by this mea
he will become gradually familiarized with the scene
of nature, and the terms by which its various pa
are distinguished. His attention may also be direct

to the sky, not merely for the purpose of distinguishing its objects, but for tracing their motions. Let him be taken to a certain point, where he will observe the rising sun, and, on the evening of the same day, let him be brought to the same position to behold his setting, and let him be taught to mark the different direction in which he sets from that in which he arose; from which he will naturally conclude, that *motion* of some kind or other has taken place. In like manner, about twilight, when the moon begins to appear, let him be directed, from a certain station, to mark her position in the heavens with respect to certain objects on the earth over which she appears, and, before going to bed, let her be viewed from the same station, and the different position in which she then appears pointed out. Such observations will pave the way for more particular instructions on such subjects, as he advances in years.

In the same manner, *artificial* objects of various descriptions, as windmills, tables, sofas, candlesticks, hammers, scissors, organs, piano-fortes, clocks, watches, globes, telescopes, microscopes, &c. may be exhibited, and some of their uses explained. It might not be improper to give a child of two years old a lesson of this kind every day,—making it a rule to have, if possible, some new object to exhibit to him at every lesson, and occasionally recurring to the objects to which his attention was formerly directed, that they may become still more familiar to his mind.—In communicating to children the names of the various objects of nature and art, all improper pronunciations and *diminutives* ought to be avoided—

such as *doggie, cattie, horsie, chairie,* instead of dog, cat, horse, chair. It should be considered as an important rule in infant education—that *a child should never be taught any pronunciation, or any sentiment, opinion, or idea whatever, which he will afterwards be obliged to unlearn.* Were this rule universally attended to, in connection with the hints now suggested, the path to knowledge would be rendered smooth and easy—every day would increase the ideas which tend to enlarge the capacity of the infant mind—the way for regular scholastic instruction would be thoroughly prepared—as the youth advanced towards manhood, his knowledge and perceptions, if properly directed, would increase with his growing years—and, as no limits can be affixed to the expansion of the human mind, he may go on to increase his perceptions and intellectual enjoyments to an indefinite extent, not only during the fleeting periods of time, but throughout the ages of eternity. But, in the present state of infant-training, a very considerable portion of our scholastic instructions must consist in *counteracting* the impressions which have been previously received.

After various objects of nature and art have been presented to the view of a child, in conjunction with the names by which they are distinguished—their qualities should next be pointed out and illustrated. Objects are either animated or inanimated, vegetable or mineral, hot or cold, rough or smooth, hard or soft—black, blue, green, yellow or white—round, oval, square, triangular—high, low, long or short, &c. Several properties such as these can easily be illustrated to children by familiar examples. To convey an idea to a child that *fire is hot*, he may be presented with a piece of iron, and caused to feel it; it may then be put into the fire till it become just as hot as a person may touch it without danger, and then desire the child to put his finger upon it, which will convince him of the nature of that property which resides in the fire—the epithet *cold* being applied in the first case, and *hot*, in the last. To illustrate the ideas of *roughness* and *smoothness*, he may be made to press his hand along an unhewn stone, and the top of a mahogany table. Seven small boards or pieces of card paper, painted with the seven primary colours of light, red, orange, yellow, green, blue, indigo and violet—occasionally exhibited for his amusement, in connection with these terms, would soon teach him to distinguish the prominent colours of natural and artificial objects; and, when he is led into the fields and gardens, he should be induced to apply his knowledge of colours by naming the prominent colour of every flower or shrub that may be presented to him. The qualitics *hard* and *soft* may be illustrated by making him press his finger upon a stone or a bar of iron, and upon a piece of clay or a lump of dough. The property of light in enabling us to discover the forms and colours of objects may be shown, by closing the window-shutters, or putting out a candle under night, and then desiring him to name the objects and colours he perceives;—and the correspondence of the organ of vision to the rays of light may be impressed upon his mind by blindfolding him for a minute or two,—and accompanying such exhibitions with appropriate remarks level to his comprehension. The *figures* of objects may be represented by pieces of wood or pasteboard cut into the shapes of squares, parallelograms, triangles, trapeziums, circles, ellipses or ovals, and other mathematical figures, which would gradually impress the names and characteristics of such figures upon his mind, and tend to facilitate his progress in the scholastic instructions that may be afterwards imparted. His idea of length, measure, or distance, may be rendered somewhat definite, by presenting to him pieces of wood of the length of an inch, a foot, a yard, and a pole, and causing him to notice how many lengths of the one is contained in that of the other; and the idea of the *specific gravities* of bodies may be impressed, by causing him lift a weight of brass or cast iron, and another, of nearly the same size and shape, made of light wood. The *sonorous* qualities of bodies may be exhibited by making him strike a small hand-bell with a key or a piece of thick wire, and immediately afterwards, an egg-cup, or any small dish made of hard wood. The various odoriferous smells connected with the vegetable kingdom may be communicated by presenting to his nostrils, in succession, a rose, a bunch of thyme, of balm, of peppermint and of southernwood. Such experiments and illustrations of the qualities of bodies may be varied and multiplied to an indefinite extent; and as they form the foundation of all knowledge, and may be rendered subservient to the child's amusement, they ought not to be considered as unworthy of our attention.

Many useful ideas might likewise be communicated to infants by means of *engravings;* especially *in relation to* objects which cannot be directly presented to their view. Foreign animals, such as the elephant, the lion, the buffalo, the camelopard, the monkey, the dromedary and camel, may be in this way exhibited—and also domestic animals, as the cow, the horse, the ass, the dog, &c.—as children feel a considerable degree of pleasure in being able to trace the resemblance between pictures and the objects they have seen, when accurately represented in engravings. Foreign scenes, as towns, churches, bridges, mausoleums, triumphal arches, rural landscapes, mountains, volcanoes, cataracts, lakes and other objects, when accurately delineated, may likewise tend to expand the conceptions of children, and give them an idea of objects which their own country does not exhibit. Various objects of art, as ships, boats, windmills, towers, spires, lighthouses, coaches, waggons, smiths' anvils, forges and hammers, weavers' looms, &c. may also be thus exhibited. One of the most pleasing and useful modes of exhibiting real objects by means of pictures, is that of viewing perspective prints of streets, towns, villages and rural landscapes, by means of the *optical diagonal machine;* of which I shall, in the sequel, give a short description. In exhibiting objects to a child through the medium of engravings, it may be proper, in the first instance, to present to him only *one* object, well-defined and disconnected with every adventitious circumstance, as a *man*, a *horse*, a *mountain*, or a *tree*, so that he may acquire a correct and well-defined idea of the particular object exhibited. Afterwards, a landscape in which these and other objects are embodied may be laid before him, and he may be desired to point out the individual objects of which it *is composed, when their* names are mentioned.—It is almost needless to remark, that the pictures contained in most of our nursery and toy-books, are altogether unfitted for the exhibitions to which I allude. They are generally mere caricatures, and are little short of an insult to the young, both as to the *objects* they most frequently represent, and the *manner* in which they are represented. Engravings, calculated to convey instruction, should be on a moderately large scale—every part of the object represented should be accurately delineated—no objects should be placed in awkward or unnatural positions—and they should, in most cases, be coloured after nature, care being taken that they be not daubed with fantastic or too glaring colours—a fault which attaches to most of our pictures intended for children. A series of engravings exhibiting all the prominent scenery and objects of nature and art, on a cheap plan, and properly classified and arranged for the purpose now specified, is still a *desideratum*.

While writing the above hints, I had an opportunity of trying the experiments now suggested, on a fine little boy, a friend of my own, about two years old. Little Tom was first presented with the plates of a book of Natural History, and desired to name the lion, the elephant, the camel, and about twenty or thirty other animals, when their figures were pointed out, which he did without the least hesitation. The plates were then put into his hand, and he was desired to turn up any particular animal when its name was mentioned, which he accomplished with considerable facility. A sheet, containing about *sixty* engravings of birds, quadrupeds, and fishes, where the different kinds of animals were grouped without any order—was next laid before him, when he was requested to point out a particular animal, when its name was given, which he also did, in almost every instance, after casting his eye up and down, and across the engraving, and, when he had hit on the object, he pointed to it with exultation, saying, "There's the lion—there's the goat—there's the dromedary," &c. The figure of a compound microscope was next exhibited, which he readily named; and several hours afterwards, a microscope of the same construction as represented in the engraving, was placed before him, which he immediately recognised and named, and then turned up the engraving where its figure was delineated, marking the resemblance between the one and the other. The same experiments were made with a terrestrial globe, an orrery, a telescope, a clock, a watch, and various other objects. He was next desired to point to several articles in the apartment—the table, a chair, the tongs, the shovel, the poker, a map, a portrait of a friend whom he knew, and other objects, which he at once recognised and distinguished. Several engravings of landscapes were then presented to his inspection, when he was requested to point out the men, women, trees, ships, houses, &c. of which they were composed; which he did with pleasure, and without hesitation, pointing his little fingers to different parts of the scene, and saying, "There's a dog—there's a man—there's a house—there's a tree," &c. I next led him into the garden, and placed him in a proper situation for viewing the surrounding objects. I first asked him to point to a *windmill—there being one,* and only *one* in view.

CHAPTER IV.

On Infant Schools.

NOT many years ago, it would have been dee romantic, and even absurd in the extreme, to attempted the establishment of seminaries for instruction of infants of the age of eighteen or tw months, or even of two or three years. But institutions have not only been attempted, but ally established to a considerable extent in va States both in Europe and America, and have attended with the most delightful and bene effects. Children, at a very early period, as form noticed, before they have acquired the alph of any language, are capable of receiving a considerable portion of mental instruction. possess the *five senses*, in nearly as great perfe as those of mature years; and it is through medium of these senses that all our knowle whether historical, philosophical, or religious acquired. Children possess, in a high degree, desire of *novelty*—and the principle of *curi* faculties intended by the Creator to stimulate t

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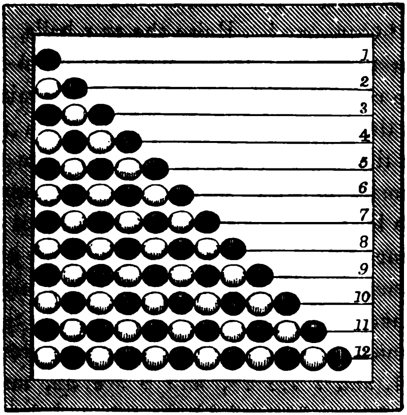
respect to the present life and the life to come. For ac plishing these objects—besides regular meetings for praye conversation, at which the children sometimes attend—a pe cal has been commenced in America, entitled, "The Mo Magazine," which is reprinted in London, containing va useful facts, narratives, and observations, illustrative of this ject. Such associations, if judiciously conducted, cannot f producing a highly beneficial effect on the rising generation, *ultimately on the state* of general society.

prosecution of knowledge; and it is only requisite, that we direct the operation of these faculties in a proper channel, and present interesting and appropriate objects to stimulate their activity.

The principal objects of infant schools ought therefore to be—to exhibit to the view of children as great a variety as possible of the scenes of nature and the operations of art, either by directing their views immediately to the objects themselves, or by means of pictorial representations—to teach them to *distinguish* one object from another, to mark its peculiar qualities, to *compare* one object with another, and to deduce certain useful truths or conclusions from them—to instruct them how to use their voices, their eyes and ears, their hands and feet—to teach them the properties of numbers, the magnitudes, distances, and relative positions of objects, the forms and habits of animals, the different classes and uses of vegetables and minerals, the various objects to be seen in the fields and gardens, and the general aspect and phenomena of the atmosphere and the heavens—to impress their minds with the existence of a Supreme Being, of their continual dependence upon him, of his Goodness, Power, and Omnipresence, and of the duties they owe him—to teach them the fundamental maxims and rules of the Christian system, and make them reduce them to practice—to train them to kindness and affection towards one another, to habits of cleanliness, neatness, and regularity in all their movements, and to conduct themselves with moral order and propriety, both in the school, *the play-ground, and* in their domestic associations—*in short, to develop* all the intellectual and obey any commands with the greatest promptness 1 be classed together. Such difficulties are general surmounted by making them all move their han and feet at the same time, when repeating any se tence; sometimes by causing them march in a regul body round the school; sometimes by making the put their hands one on the other when they a repeating a fact or a sentiment, and sometimes l exciting them to dance to the sound of the clarion or the viol. Monitors are selected by drilling tl oldest and the most expert of the children at separa hours, instructing them particularly in the work th have to perform, and making every one of them a swerable for the conduct of his class. These litt masters frequently conduct themselves with gre shrewdness and ability, and sometimes with a degr of importance and pomposity which it is found nece sary to check. The children are taught *singing*, l the master singing a psalm or hymn several times their hearing, till they acquire a certain idea of tl tune; after which they are required to join with tl teacher, and, in a short time, the greater part a enabled to join in the music with considerable co rectness; and nothing can be more interesting a exhilarating to a pious and benevolent mind, than listen to a hundred young voices thus joining in un son, in a hymn of praise to their Creator. They a taught to repeat hymns generally in the followi manner. One of the monitors is placed in the ro trum, with a book in his hand; he then reads o line, and pauses till all the children in unison ha repeated it; he then reads or repeats another, a so on in succession till the hymn is finished. T same method is adopted in teaching them spelling, catechisms, moral maxims and precepts, and whatever else is to be committed to memory. It should, however, be attended to, that every thing they commit to memory from catechisms, hymns, or other books, should be previously explained; so that in every case, if possible, they may acquire the *ideas* contained in the passages they are to repeat, *before* they charge their memories with the vocables by which they are expressed.

The Alphabet is taught by means of twenty-six cards, corresponding to the number of letters, on each of which is engraved a letter, along with some object of nature or art, whose name begins with that letter. Thus, on the card of the letter A is engraved an apple. This card is held up to the children, who name the letter and the object depicted beside it. A variety of questions is then put respecting the nature, form, and properties of the apple, and of the root, trunk, branches, leaves, &c. of the tree on which it grows; by which the attention of the children is kept alive, certain portions of useful knowledge communicated, and the idea of the letter more deeply impressed upon their minds. On the card of letter C, a cow, a camel, or a cat, is depicted; which is exhibited in the same manner, and various questions put respecting the figure, parts, habits, and uses of either of these animals: and so on through the other letters of the alphabet. This exhibition is varied as much as possible, and practised only two or three times in a week, that the children may not be wearied *by its too frequent* repetition. Another *plan is sometimes adopted*,—an alphabet, printed in large letters, both Roman and Italic, is pasted on a board, and placed against the wall; the whole class then stands around it, and the master or mistress points to the letters, desiring the children in a body to pronounce the letter to which he points. In spelling, each child is supplied with a card and tin, on which certain short words are printed. A monitor leads the rest in the following manner: "C-h-a-i-r;" the other children immediately follow: and when they have spelled one word, he repeats another, till he has gone through all the words on the card. For the purpose of teaching the older children to *write* the alphabet, they are supplied with slates, on which the whole alphabet is engraved—some in capital letters, and others in text; the children then put the pencil into the engraving, and work it round into the shape of the letter, which they can scarcely avoid doing, as the pencil will keep in the engraved part. In this way they gradually learn both to form the letters correctly, and to read written characters and sentences.

The properties of numbers, and the fundamental rules of Arithmetic, are taught by various modes; particularly by an instrument which has been termed the *Arithmeticon*, or Transposition-frame. The following is a figure and description of the use of this instrument, taken from Mr. Wilderspin:—"The frame is sixteen inches square, and made of wood; twelve wires pass through it at equal distances; on which wires, seventy-eight moveable balls are to be placed, beginning with one on the first, two on the second, three on the third, &c. up to twelve." By this instrument may be taught "the first principles of grammar, arithmetic, and geometry. It is used as follows:—Move one of the balls to a part of the frame distinct from the rest: the children will then repeat, 'There it is, there it is.' Apply your finger to the ball, and set it running round: the children will immediately change from saying, 'There it is,' to 'There it goes, there it goes.' When they have repeated 'There it goes,' long enough to impress it on their memory, stop the ball: the children will probably say, 'Now it stops, now it stops.' When that is the case, move another ball to it, and then explain to the children the difference between singular and plural, desiring them to call out, 'There they are, there they are;' and when they have done that as long as may be proper, set both balls moving, and it is likely they will call out, 'There they go, there they go,' &c. &c. By the natural position of the balls they *may be taught to begin* at the first. The *master, raising it at the top* of the frame, says,



'What am I doing?' Children answer, 'Raising the ball up with your hand.' *Q.* 'Which hand?' *A.* 'Left hand.' Then the master lets the ball drop, saying, 'One, one.' Raise the two balls, and propose questions of a similar tendency: then let them fall; the children will say, 'Twice one:' raise three, and let them fall as before; the children will say, 'Three times one.' Proceed to raise the balls on each remaining wire, so that they may say, as the balls are let fall, Four times one, five times one, six times one, seven times one, eight times one, nine times one, ten times one, eleven times one, twelve times one. We now proceed as follows: 1 and 2 are 3, and 3 are 6, and 4 are 10, and 5 are 15, and 6 are 21, and 7 are 28, and 8 are 36, and 9 are 45, and 10 are 55, and 11 are 66, and 12 are 78. *Subtraction* is taught by this instrument thus:—Take 1 from 1, nothing remains, moving the first ball, at the same time, to the other end of the frame. Then remove one from the second wire, and say, 'Take 1 from 2;' the children will instantly perceive that only one remains: then 1 from 3, and 2 remain; 1 from 4, 3 remain; 1 from 5, 4 remain, &c. *Multiplication* is taught as follows:—The teacher moves the first ball, and immediately after the two balls on the second wire, placing them underneath the first, saying, at the same time, 'Twice one are two,' which the children will readily perceive. Next, remove the two balls on the second wire for a multiplier, and then remove two balls on the third wire, placing them exactly under the first two, which form a square, and then say, 'Twice two are four,' which every child will discern for himself, as he plainly perceives there are no more. We then move three on the third wire, and place three from the fourth wire underneath them, saying, 'Twice three are six.' Remove four on the fourth wire, and four on the fifth; place them as before, and say, 'Twice four are eight:'" and so on, through all the wires and balls.

The first principles of arithmetic are also taught, by means of small cubes. The children are formed into a square, in the centre of which is placed a table, on which the cubes are placed—one, two, three, or four at a time. The master puts down three, for example, and inquires of the children how many there are; when they naturally call out, "Three." He puts down two more: and inquires as before, "How many are three and two?" they answer, "Five:" and thus goes on till he has put down to the number of fifty or sixty. In a similar manner *Subtraction* is illustrated, by placing, for example, 9 cubes on the table, and saying, "Take 5 from 9, how many will remain?" and, removing 5 cubes, it will be seen that 4 remain, &c. The multiplication table, the pence tables, the tables of money, time, weights, and measures, are taught by a monitor repeating certain portions of them at a time, and being immediately followed by all the children in unison. Thus, when the monitor announces, "7 times 8 are 56," or "Forty pence are three and fourpence," the children in a body repeat the same; and in a short time the whole of these tables are impressed upon their memories.

The leading facts of Sacred History are communicated by means of a series of historical pictures, and by a variety of minute descriptions and interrogatories. The more interesting facts of Natural History are exhibited by a number of large cards, on which are pasted engraved representations of quadrupeds, birds, fishes, insects, trees, flowers, and similar objects; in the explanation of which an opportunity is taken of detailing their forms, qualities, and uses, and any anecdotes that may occur respecting them. Knowledge is also communicated in relation to many common and useful subjects, by presenting before them *real objects*, such as gold, silver, copper, brass, tinfoil; a piece of flax, thread, raw silk, twisted silk, cotton, linen, gauze, nankin, gingham, silk velvet, &c. describing the different processes connected with their manufacture, and teaching the children how to recognise and distinguish such substances. But, as I have no intention of entering into the minute details connected with infant schools, I refer those who wish a more particular account of these institutions, to Mr. Wilderspin's excellent treatise on "Infant Education," and Mr. Stow's "Moral Training,"* and shall conclude this article by a few general remarks on the *advantages* which would result from the universal establishment of such seminaries.

1. The establishment of infant schools in every region of the globe would increase, to an indefinite degree, the mass of useful information among mankind. Three or four years of the most important period of human life have hitherto been suffered to pass away without any material intellectual improve-

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* "Moral Training, Infant and Juvenile, as applicable to the condition of the Population of large Towns. By David Stow, a Director of the Model Schools, Glasgow. Second Edition, enlarged." With plates.

ment. The young, indeed, during this period, acquired various fragments of useful knowledge, in spite of our remissness and inattention; for the principle of curiosity was always alive, and could never be altogether suppressed, wherever objects appeared by which it might be roused and gratified. But we never thought of directing their senses and mental powers, regularly and systematically, to the forms, qualities, uses, and characteristic features, of surrounding objects, as if such things had been beyond the range of their comprehension; while, at the same time, we tortured their memories with the retention of sounds and sentences with which they felt disgusted, and which they could not understand. But the experiment of infant schools has shown, (and, if we had not acted like fools in the business of education, it might long ago have been demonstrated,) that children from the age of three to six years are capable of acquiring far more of what may properly be denominated *knowledge*, than what had been acquired by our usual insipid modes of instruction at the age of twelve or fourteen. And, what is worthy of particular attention, this knowledge has been acquired, not only without "stripes and imprisonment," but with the highest degree of satisfaction and enjoyment on the part of the young. If the world, therefore, is ever to be thoroughly enlightened, in every thing which relates to the present happiness and the eternal interests of mankind, and if the knowledge of Jehovah is "to cover the earth as the waters cover the seas," the foundation must be laid in the universal establishment of infant schools, on the most judicious and expansive plans, in every nation under heaven.

2. It is not only the amount of knowledge actually acquired, during the period alluded to, but *the intellectual habits* formed during its acquisition, which render such instructions of immense importance. For want of these habits being formed in early life, the great bulk of mankind may be said to have "eyes, but see not—ears, but hear not," and consequently "do not understand;" they know neither the proper use of their sensitive organs, nor are qualified to deduce proper conclusions from the objects to which they are occasionally directed; but pass through life without any *rational* application of the senses and faculties with which they are furnished. Is there one out of ten that has ascertained, from his own observations, that the starry heavens perform an apparent revolution round the earth every twenty-four hours, around a certain fixed point called the pole? Is there one out of twenty that can tell at what seasons of the year the new moon will appear at a high elevation above the horizon, and when the full moon will appear high or low? And yet these facts may be ascertained, without the least difficulty, by a simple application of the organs of vision to the respective objects, combined with a desire to know the results;—in the first case, the object may be determined in the course of a single day, and in the latter case, within the course of a year; and yet it is a fact, that sixty or seventy years have passed away, in the case of thousands and millions of those who are denominated *rational beings*, without their knowing either the one or the other. The same position might be illustrated in thousands of similar instances, where the grossest ignorance prevails in relation to

itudes of objects, which might have been pre-
ed by a rational use of the sensitive organs with
h the Creator has endowed us. Now, in infant
ols, children are trained to a proper application
heir sensitive powers—presented with suitable
ts on which they may be exercised, and taught
duce from them useful truths, with their prac-
applications. These intellectual habits being
ed in early life, will naturally be brought into
vigorous and extensive exercise as they ad-
e in years, and lay the foundation of all the
ures of knowledge they may accumulate, both
e present life and throughout the ages of eter-
Such habits being formed and continually
cised, a *relish* for knowledge, and *activity of*
l, are produced, which will facilitate all their
equent acquisitions, and render them interesting
delightful; so that, in whatever stations in so-
they may afterwards be placed, they will be
nguished as men of wisdom and intelligence—
ided their subsequent education be conducted on
ame rational principles.

What is of still greater importance,—in these
ols *the foundations are laid of moral and religious*
ts. It has been the practice hitherto, in infant
ols—a practice which I trust will never be abol-
l—that the children have their minds impressed
the idea of an Omnipresent Being, who contin-
supports them, and to whom they are amenable
ll their actions—that their exercises are uniformly
menced with prayer, and with a hymn of praise
e Creator and Redeemer of men—that the lead-
facts of Revelation are detailed in the most sim-

ple and interesting manner, and its moral precepts enforced in all their associations with each other—that the principles of fraud, dishonesty, deceit, hatred and malignity, wherever they appear, are strictly checked and counteracted, and the practice of love, kindness, honesty, justice and truth, enforced and exemplified. Now, such truths inculcated, and such practices enforced and exemplified, for several years, when the mind is susceptible of every impression, and of being moulded into any habit, must be of immense importance in a moral point of view—and if such seminaries were universally established, conducted on liberal and judicious plans, and succeeded by seminaries of a higher order, conducted on similar moral principles—society would soon assume a new moral aspect, wickedness and debauchery would be banished from our streets, thefts and robberies would gradually be diminished, brawlings, contentions and execrations would cease, and harmony and good-will be introduced into the schemes and associations of mankind.

It is an injunction inculcated by the highest authority, "Train up a child in the way he should go, *and when he is old he will not depart from it.*" The last part of this sentence contains a most important truth, stated without the least exception or modification. The interpretation generally given of it by divines is, "He will not *ordinarily* depart from it." But what warrant have we thus to limit and modify the dictates of inspiration? Let the declaration be viewed as a universal and eternal truth, and the problem to be solved will be, "Has ever a child hitherto, in all points of view, intellectually and morally, been trained up in the way he should go?" If so, we ought to believe that the declaration in this passage was fully realized in such a case. Much has been said respecting the children of pious parents turning aside from the paths of rectitude in their riper years. But the fact to be determined is, Have such parents trained up their children in a rational, judicious, and benevolent manner? I have seen persons piously disposed, and even ministers of the gospel, train up their children as foolishly and injudiciously as those who made no profession of religion, and even with less wisdom and discretion. Not that they *intended* to train their offspring in any bad principles and practices, but that they were either ignorant of the true mode of training children, or had imbibed false maxims, or indulged a foolish fondness, or had neglected to bring their children under a judicious control, or had humoured their whims and pampered their appetites, or were placed in certain circumstances, and in the midst of difficulties over which they had little control. Even in attempting to teach their children the principles of Christianity, their plans have been calculated rather to excite disgust at religion, than to allure their hearts to the practice of its heavenly precepts. What else could be expected, when children, on the Sabbath, were confined to a corner, conning memorial *tasks*, committing to memory catechisms, Psalms, and chapters from their tattered New Testaments, of which they understood not a single sentence—and at the same time deprived of their usual sensitive enjoyments, and, doubtless, exclaiming in their hearts, "O what a weariness is it; when will the Sabbath be over!"—just as if religion consisted in the acquisition of technical terms, sounds and sentences, and metaphysical dogmas. Is this the way to induce the young to love God, "to call his Sabbaths a delight, and the holy of the Lord, honourable?" or is it to be wondered at, that those who have been brought up in this way have sometimes struck off at a tangent from the restraints of religion to the ways of sin and folly? If the whole train of education through which such children passed, from the first year of their existence to the period when they turned aside from the paths of righteousness, were laid open to our view, we should, doubtless, be enabled to account for all such moral aberrations, and to trace the intimate connection between cause and effect.

I have thrown out these remarks for the purpose of showing, that if public and domestic education be conducted with judgment and piety, if children be trained in infant schools and other seminaries in useful knowledge, and to the habits of piety and moral order, —we have the surest grounds for concluding, that, when arrived at mature age, they will become intelligent and useful members both of Christian and of civil society, and that our arrangements and labours in these respects "shall not be in vain in the Lord." The dictates of Inspiration on this point are in perfect unison with the laws of the moral world, and are corroborated by universal experience. Almost every person feels that early impressions are the most vivid and the most lasting; and it is a fact, that, according to the bent which the habits, dispositions, and conduct of the young receive, during the first ten or twelve years of their existence, such will it generally remain, with a few slight modifications, during the future periods of their lives. Hence the difficulties—in many cases insurmountable—which must be encountered, in order to counteract the habits and vicious propensities acquired during this early period; and hence the comparative ease with which children may be trained to intelligence and moral habits, when they are committed, at a very early age, to the care of a judicious and intelligent teacher of an infant school.*

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* As an illustration of the moral and intellectual effects of infant teaching, I subjoin the following examples, taken from Mr. Wilderspin's "Infant Education," as what occurred in the course of his own experience:—

1. *The Whistle.* "Many of the children were in the habit of bringing marbles, tops, whistles, and other toys, to the school, which often caused much disturbance: I found it necessary to forbid the children from bringing any thing of the kind. After giving notice two or three times in the school, I told them, that if any of them brought such things, they would be taken from them. In consequence, several things fell into my hands, which I did not always think of returning; and among other things, a whistle from a little boy. The child asked me for it as he was going home, but having several visitors at the time, I put the child off, telling him not to plague me, and he went home. I had forgotten the circumstance altogether, but it appears the child did not; for some time after, while I was lecturing the children upon the necessity of telling truth, and on the wickedness of stealing, the little fellow approached me, and said, '*Please, sir, you stole my whistle.*' 'Stole your whistle,' said I, 'did I not give it you again?' 'No, teacher; I asked you for it, and you would not give it to me.' I stood self-convicted, being accused in the middle of my lecture, before all the children, and really at a loss to know what excuse to make, for I had mislaid the whistle, and could not return it to the child. I immediately gave the child a halfpenny, and said all I could to persuade the children that it was not my intention to keep it.—This trifling mistake of mine did more harm than I was able to repair for some time; for if we wish to teach children to be honest, we should never take any thing from them without returning it again."—This story shows how necessary it is to teach by example as well as precept—and that children have a clear perception of any discrepancy that may take place in this respect.

4. Infant schools are calculated *to rescue thousa of children from the pernicious influence of ignor*

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2. *The boy and the song.* "One day while I was walkin the play-ground, I saw at one end of it about twenty child apparently arguing a subject, *pro* and *con*. From the attitu several of the orators, I judged it was about something w appeared to them of considerable importance. I wished to k the subject of debate, but was satisfied that if I approached children it might put an end to the matter altogether. Som the by-standers saw me looking very attentively at the prin actor; and, as I suppose, suggested to the party the propriet retiring to some other spot; for immediately they all retired hind a partition, which afforded me an opportunity of disti hearing all that passed, without being observed by them. I found that the subject of debate was a *song*. It seems that of the children had brought a song to the school, which som the monitors had read, and having decided that it was an im per thing for the child to have in his possession, one of them taken it from the owner, and destroyed it; the aggrieved p had complained to some of the other children, who said th was *thieving* for one child to take any thing from another child w out his consent. The boy, nettled at being called a thief, defe himself by saying that he, as a monitor, had a right to take a from any of his class any thing that was calculated to do t harm; and was, it seems, backed in this opinion by many oth On the other hand, it was contended, that no such right exis and it was doubtful to me, for a considerable time, on which the strength of the argument lay. At last, one of the chil observed to the following effect: 'You should have take to *master*, because he would know if it was bad better you.' This was a convincing argument, and to my great de the boy replied—'How much did the song cost?' The r was, 'A halfpenny.' 'Here, then, take it,' says the child, had one given me to-day; so now remember I have paid you it; but if you bring any more songs to school, I will tell mas This seemed to give general satisfaction to the whole party, immediately dispersed to their several amusements. A stru like this between the principles of *duty* and *honesty*, among dren so very young, exemplifies, beyond a doubt, the immense vantage of early instruction."—Here we have a specimen, in case of very young children, of nice discrimination in regar the principles of moral rectitude and of *reasoning*, which w have done no discredit to an assembly of senators.

3. *Infant critics.* "Having discoursed one day on the di ence between isosceles and scalene triangles, I observed tha acute isosceles triangle had all its angles acute; and proceede

immoral parents, and *to prevent most of those* *es which injure the peace and prosperity of so-* *y.* The immoral principles and vicious habits in ch multitudes of children are trained under the estic roof, not only lay the foundation of their unhappiness and ruin, but are productive of many s and nuisances to general society. In cities populous towns, this fact is too frequently rea- l. Many children are trained up, even by their nts, to habits of *pilfering*, which they sometimes

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ve, that a right-angled scalene triangle had all its angles . The children immediately began to laugh, for which I t a loss to account, and told them of the impropriety of ing at me. One of the children immediately replied, 'Please, o you know what we were laughing at?' I replied in the tive. 'Then, sir,' says the boy, 'I will tell you. Please, ou have made a blunder.' I, thinking I had not, proceeded fend myself, when the children replied, 'Please, sir, you con- yourself.' I replied, 'How so?' 'Why,' say the children, said a right-angled triangle had one right angle, and that all gles are acute. If it has one right angle, how can all its s be acute?' I soon perceived that the children were right, hat I was wrong.—At another time, when lecturing the chil- on the subject of cruelty to animals, one of the little chil- observed, 'Please, sir, my big brother catches the poor flies, hen sticks a pin through them, and makes them draw the long the table.' This afforded me an excellent opportunity pealing to their feelings on the enormity of this offence; and, g other things, I observed, that if a poor fly had been gifted powers of speech like their own, it probably would have ex- ed, *while dead*, as follows:—'You naughty child, how can hink of torturing me so? Is there not room enough in the for you and me? Did I ever do you any harm? Does it any good to put me to such harm? How would you like to run a piece of wire through your body, and make you things about? Would you not cry at the pain?' &c. g finished, one of the children replied, 'How can any thing if it is dead?' 'Why,' said I, 'supposing it could speak.' meant to say, sir, *dying*, instead of *dead*.'—In this case I ly misused a word, and the children detected it."—Here are another instance of the nice discrimination of which n are capable, and of the great importance of their being t to *think*—one of the most important parts of education, learn to practise with the utmost cunning and expertness, without the least sense of its moral delinquency. It was estimated, that, in the year 1819, in the city of London alone, the number of boys who procured the greater part of their subsistence by picking pockets, and thieving in every possible form, amounted to from twelve to *fifteen hundred!* One man had forty boys in training to steal and pick pockets, who were paid for their exertions with a part of the plunder; and a woman who had entrapped eight or ten children from their parents, had them trained up and sent out in every direction for the purpose of thieving, till she was happily detected. Such children, in all probability, were chiefly procured from the families of the ignorant and the vicious; and when a habit of pilfering is early indulged, it not only leads to the practice of falsehood, cunning and deceit, in all their diversified forms, but entirely blunts the moral sense, and leads to the commission of almost every other crime. It is no uncommon thing to observe in the police reports of London, accounts of boys, and even girls, of six or seven years of age, being apprehended for the offences of pocket-picking, shop-lifting, stripping children of their clothes and ornaments, and similar depredations committed with all the expertness of an experienced delinquent. And, if such mental activities are so early displayed in the

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which has been so long overlooked. In consequence of their having acquired the elements of thought, they were enabled, in the one case, to refute the assertion of their teacher, by a conclusive argument; and, in the other, to detect the misapplication of a term. A whole community taught to think and reason would be the means of preventing numerous evils, and of introducing innumerable blessings into the social state.

arts of wickedness, how important must it be to bend the active powers of the young in a contrary direction, and how many useful energies might we soon bring to bear upon the renovation of the moral world! For, notwithstanding the depravity of human nature, children may be trained to exert their skill and activities in the cause of virtue, as well as in the arts of mischief, if the same care and ingenuity be employed in their instruction.—Now, infant schools are peculiarly calculated to promote in children habits of virtuous activity. They are taught to think and reason, and to apply the rules of Christianity to their actions and social intercourses with each other—are instructed in the evil of lying, swearing, stealing, and other vices; and some of them who had previously been addicted to these vices have been effectually cured of such evil propensities. Not only so, but the sentiments and habits they have carried home to their parents have sometimes been the means of arousing them to consideration, and turning them " from the error of their ways." And, although infant schools were established for no other purpose than the prevention of crimes, it would save to the public ten times the expense that might be incurred in their erection and superintendence; for, in large cities, such young delinquents as I have now alluded to, regularly supply the place of the hundreds of old and experienced thieves that are yearly convicted and transported to another country; and the expense attending the conviction and transportation of one delinquent, is sometimes more than would suffice for the erection of an establishment for the instruction of a hundred children.

thus instructed, when arrived at youth and manhood, would exert a most powerful influence on their fathers, mothers, friends, and relatives, and on all around them—while their own minds have been brought under the most salutary influence, being pre-occupied with those truths and habits which will preserve them from the contamination of the heathenish practices which prevail around them.

It gives me much pleasure to learn, that in the rudest portion of the pagan world, (namely, in the regions of Southern Africa,) such institutions have been recently established, and been accompanied with many beneficial effects. Mr. Buchanan, superintendent of the infant school at Cape Town, during the year 1832, established and re-organized a number of these institutions, at Caledon, Pacaltsdorp, Hankey, Bethelsdorp, Port Elizabeth, Theopolis, Philipston, Buffalo River, and other places; and, though the returns of scholars are not complete, they amount to about 500 children. After the school in Theopolis had been established only six months, the number of children in daily attendance amounted to from 110 to 120. Many of the children were capable of giving effect to the monitory system, and their conduct is described as cheerful, gentle, and compliant, although but a few months before they were most of them "in a state of nature." The infant school at Bethelsdorp was re-established, under the care of a native female. About two years ago it was discontinued, after having been carried on for six months. The advantages, however, which the children had derived during that short period, were evinced, notwithstanding the interval which had elapsed, by the superiority of manner and intelligence which they appeared to Mr. Buchanan to possess over the uninstructed children of other stations. They had been accustomed, after the school was discontinued, to assemble in groups, and repeat for their amusement the lessons and hymns they had learned at the school. Mr. Buchanan, on a former occasion, assisted in opening and organizing a school at *Caledon.* On his late visit, he perceived a marked improvement in the dress and personal cleanliness of the children. At the opening of the school, out of thirty pupils, two only had any other covering than sheepskins, and many were unclothed. When he last took his leave of them, they were all dressed like other children, and many of them with considerable neatness. It was apparent, that the children had acquired some sense of the propriety of dress and personal cleanliness, from their manner during the repetition of the lesson, "*To put my clothes on neat and tight, and see my hands and face are clean;*" and it was equally obvious that their parents appreciated the advantages of the institution, from the fact of some of them having voluntarily requested to be allowed gratuitously to clean out the school-room alternately, and of their having continued regularly to perform that service. The inhabitants of many other villages have expressed a desire for the introduction of infant schools among themselves—offered to appropriate for that purpose the best house they had, and promised, when their lands shall be measured out to them, to erect a proper building at their joint expense. In several of the villages they had placed their children under the care and instruction of one of their own number, till a better teacher could be procured. Mr. Buchanan left at Philipston sufficient apparatus and lessons for the establishment of twelve schools—arrangements were in progress for their commencement—and six young persons were attending the schools, to qualify themselves for becoming teachers.*

Such are the auspicious beginnings of infant education in heathen lands, and the pleasure with which its introduction is hailed by the adult population. While many of them are unaware of the blessings to be derived from a reception of the *doctrines* of religion, they are attracted by the beautiful arrangements and exercises of infant establishments, and at once perceive their beneficial tendency and effects on the objects of their affection; and as their children advance in the accomplishments they acquire at these seminaries, they will every day become more interesting and delightful in their eyes; and it is not too much to suppose, that the knowledge and habits acquired by the children will be the means of enlightening the understandings and polishing the manners of their parents. It ought, therefore, to be one of the first objects of every missionary, to whatever part of the heathen world he is destined, to establish, as far as practicable, seminaries for the development and instruction of infant minds; and every facility for this purpose should be afforded him by the Society under whose auspices he goes forth to evangelize the nations.

7. Infant schools ought to be *universally established, for all classes,* and *in every country of the*

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* *See* Evangelical Magazine for December, 1833.

civilized world. It is an opinion which still too much prevails, that such establishments are chiefly calculated for the instruction of the lower classes of society. But this is *a gross misconception of the nature and tendency of infant institutions*, and a very dangerous mistake. These schools are adapted no less for the improvement of the higher, than the lower ranks of the community; and, unless they be soon adopted by the superior classes, the lower ranks may soon advance before them, both in point of intelligence and of moral decorum. For, in many of the families of the higher ranks, immoral maxims are inculcated and acted upon, and many foolish and wayward passions indulged, as well as in the families of their inferiors; and, although the manners of their children receive a superficial polish superior to others, their moral dispositions are but little more improved, and they possess nearly as little of what may be termed *useful knowledge*, as the great body of the lower ranks around them. Till the families of all classes feel the influence of the instructions and habits acquired at such institutions, the world will never be thoroughly regenerated. In the meantime, if the higher classes feel averse that their children should associate with those of an inferior grade, they have it in their power to establish infant seminaries exclusively for themselves. But I am sorry to find, that, in this country, scarcely any schools of this description have yet been established. There ought, however, to be no objections to children of different ranks associating together for the purpose of instruction; *unless in those* cases where children are *accustomed to dirty habits*, or where they may be exposed to infectious diseases. In the Northern States of America, perhaps the most enlightened in the world, children of all ranks are taught in the same seminaries, without any artificial distinctions;—all are nearly equally enlightened and improved, and society, in its several departments, moves on with the greatest harmony.

In concluding these remarks, it may not be improper to observe, that *teaching the children to read* ought not to be considered as one of the main objects of infant schools. Many parents are still so ignorant and foolish, as to estimate the advantages of such schools, merely by the progress they conceive their children have attained in the art of *reading.* They are unqualified for appreciating *intellectual* instruction and moral habits, and have no higher ideas of the progress of education, than what arise from the circumstance of their children being transferred from one book to another; and hence, they frequently complain, that their children are learning nothing, because no *tasks* are assigned them, and no books put into their hands. But, it ought to be generally understood, that the art of reading is not the main object of attention in such seminaries, and that they would be of incalculable importance, even although the children were unable to recognise a single letter of the alphabet. At the same time, the knowledge of the letters and elementary sounds, and the art of spelling and reading, are acquired in these schools—almost in the way of an amusement—with more facility and pleasure than on any plans formerly adopted.

In throwing out the above remarks, I have all along taken for granted that infant schools are conducted by men of prudence and *intelligence.* It is not sufficient for ensuring the beneficial effects of these institutions, that the individuals who superintend them have been instructed in the mode of conducting their mechanical arrangements. They ought to be persons of good sense, of benevolent dispositions, having their minds thoroughly imbued with the principles of Christianity, of an easy, communicative turn, and *possessed of all that knowledge of history, art, and science, which they can possibly acquire.* For no one can communicate more knowledge to others than what he himself has acquired; and no teacher can render a subject interesting to the young, unless he has acquired a comprehensive and familiar acquaintance with it. In order to secure efficient teachers for these establishments, normal schools, or other seminaries, would require to be established, in which candidates for the office of infant teachers might be instructed, not only in the mode of conducting such institutions, but in all the popular branches of useful knowledge. For, upon the *intelligence,* as well as the prudence and moral disposition, of the teachers, the efficiency of infant seminaries will in a great measure depend.

The first idea of infant schools appears to have been suggested by the asylums provided by Mr. Owen, of New Lanark, for the infant children of the people who were employed at his spinning-mills. Mr. Buchanan, under whose superintendence they were placed, was soon after invited to London, and a school was opened under his direction and management, on Brewer's Green, Westminster, which was established and patronized by H. Brougham, Esq. M. P., the Marquis of Lansdowne, Zachary Macauley, Esq., Benjamin Smith, Esq., Joseph Wilson, Esq., and about eight or nine other philanthropic gentlemen. Mr. Wilson soon afterwards established one at his own expense in Quaker Street, Spitalfields. He built the school-room, and supplied every thing that was necessary; and, on the 24th July, 1820, the school was opened. On the first day, 26 children were admitted, on the next day 21, and, in a very short time, the number of children amounted to 220, all of whom came forward unsolicited. Mr. Wilderspin, who has since distinguished himself by his unwearied zeal in promoting the establishment of such institutions, was appointed teacher. The Rev. Mr. Wilson, brother to J. Wilson, Esq., above mentioned, next established a similar school at Walthamstow, of which parish he was vicar; and an excellent lady, Miss Neave, opened one in Palmer's village, Westminster, for 160 children. In Duncan Street, Liverpool, the Society of Friends established, soon after, a very large one, and, in one day, collected among themselves, for this purpose, no less than one thousand pounds. All these schools were attended with complete success. A few years afterwards, namely, on the 1st of June, 1824, the *Infant School Society* was organized, at a meeting held at Freemason's Hall, London. The meeting was addressed, and powerful speeches delivered on the occasion, by the Marquis of Lansdowne, Mr. Brougham, late Lord Chancellor, Mr. Smith, M. P., Mr. Wilberforce, Sir. J. Mackintosh,

W. Allen, Esq., Dr. Thorp, Dr. Lushington, the Rev. E. Irving, and others; and, before the meeting had separated, a subscription, amounting to upwards of £700, was collected.

Since the above period, infant schools have been established in most of the populous towns, and even in some of the villages, of the British Empire; and, wherever they have been conducted with prudence and intelligence, have uniformly been accompanied with many interesting and beneficial effects. They have also been established in many towns on the Continent of Europe, and even in Southern Africa, and in the Peninsula of Hindostan. The enlightened inhabitants of the Northern States of America, who eagerly seize on every scheme by which moral and intellectual improvement may be promoted, are now rapidly establishing such institutions, along with Maternal Associations, throughout every portion of their increasing and widely-spreading population; and, I trust, they will soon be introduced into every nation under heaven. But, before society at large feel the full influence of such seminaries, they will require to be multiplied nearly a hundredfold beyond the number that presently exists.

CHAPTER V.

On Schools for Young persons, from the age of five or six, to the age of thirteen or fourteen years.

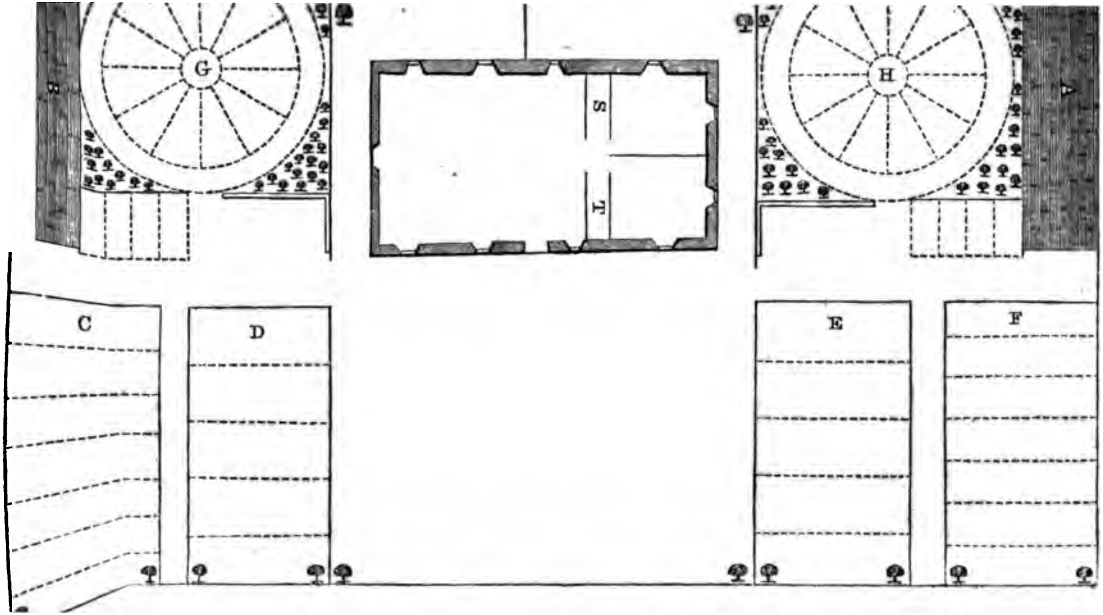
During a period of two or three centuries, we have had schools established among us for the instruction of the young, during the period of life to which I now refer. There are few countries in Europe where such institutions, for the instruction of the great mass of society, are more numerous and respectable than in the island in which we reside;—and had we not unfortunately stopped short at the very porch of the Temple of Science, we might by this time have been as far superior, in point of intelligence, to every other nation, as we now are to the savages of Patagonia and New Zealand. But, what is the amount of all the instruction generally furnished at our common initiatory schools? The elements of spelling and pronunciation—a jargon of abstract grammar rules crammed into the memory without being understood—the art of writing—the capacity of repeating the vocables of a catechism,—and a mechanical knowledge of arithmetic, without understanding the foundation of its rules. This is the sum of all that tuition which is generally considered as necessary for enlightening the human mind, and carrying forward the great body of the community in the path of moral and intellectual improvement,—a system of tuition by which the memory has been tortured, the understanding neglected, and the benevolent affections left waste and uncultivated. The effects it has produced, are visible to every intelligent mind that looks around and contemplates the ignorance, servility, and licentiousness, which still abound in every department of society.

If we, therefore, desire to behold knowledge and religious principle more extensively diffused, and *society raised to* its highest pitch of improvement, we *must adopt more* rational and efficient plans than those on which we have hitherto acted, and extend the objects of education to all those departments of knowledge in which man is interested, as a rational, social, and immortal being.—The following remarks are intended to embody a few hints in reference to such a system of tuition;—and, in the first place, I shall attend to the

Plan, situation, and arrangement of School-rooms.

The efficiency of any system of intellectual education that may be formed, will in some measure depend upon the situation of school-rooms, and the ample accommodation afforded for the scholastic exercises and amusements of the young. Every school-house should be erected in an airy and pleasant situation in the outskirts of a town or village, detached from other buildings, with an ample area around it;—and, if possible, should have a commanding view of the variegated scenery both of the earth and of the heavens,—to the various objects of which the attention of the young should be occasionally directed, in order to lay a foundation for general knowledge, and for a rational contemplation of the works of the Almighty. Both the interior of the school, and the surrounding area, should be arranged and fitted up in such a manner, as to be conducive to the pleasure, the convenience, and amusement of the young, so that the circumstances connected with education may not only be associated with agreeable objects, but rendered subservient to the expansion of their minds, and to their progress in the path of *knowledge.*

The following is a rude sketch of what might be the plan and accommodations of a village school. The plot of ground allotted for the establishment, might be about 180 feet long, by 100 in breadth, or more or less according to circumstances. Nearly in the centre of this plot, the schoolhouse might be erected, which should contain at least the following conveniences:—1. A large room, or hall, for general teaching, about 40 feet long, by 30 in breadth, and 12 or 14 feet high. 2. Two rooms, about 18 feet long and 15 broad, into which certain classes may occasionally be sent, to attend to their scholastic exercises, under the inspection either of an assistant or of monitors. 3. Two closets, or presses, S T, off the large hall, about 12 feet, by 4 in breadth, for holding portions of the apparatus, to be afterwards described, for illustrating the instructions communicated to the pupils. 4. At each end of the plot, or play-ground, should be two covered walks, A B, one for boys, and another for girls, in which the children may amuse themselves in the winter season, or during rainy weather; and, during winter, a fire might be kept up in them, and a few forms placed for the convenience of those who come from a distance, who may partake of their luncheon, and enjoy themselves in comfort during the dinner hour. 5. The spaces C D E F might be laid out in plots for flowers, shrubs, and evergreens, and a few forest trees. A portion of these plots, as G H, might be allotted for the classification of certain plants, as illustrations of some of the principles of botany. They might be *arranged* into 24 compartments, as in the figure, each *exhibiting* a different *class* of plants. The remainder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thy neighbour as thyself.—Whatsoever ye would that men should do to you, do ye even so to them.—Love your enemies, do good to them that hate you, and pray for them who despitefully use you.—The Lord is good to all; He maketh his sun to arise on the evil and on the good, and sendeth rain on the just and the unjust.—God resisteth the proud, but bestoweth favour on the humble.—Lying lips are an abomination to the Lord.—The lip of truth shall be established for ever; but lying lips are only for a moment.—To be virtuous, we must strive against many of our inclinations and desires.—The remembrance of virtuous actions is the most delightful consolation of old age.—An industrious and virtuous education of children is a better inheritance than a great estate.—The first step to knowledge is to be sensible of our own ignorance and defects.—Wisdom is better than riches.—Virtue and good behaviour are naturally productive of happiness and good fortune.—The present life is only an introductory scene to a future and eternal world; and, therefore, the knowledge and habits we now acquire should have a reference to that endless state which succeeds the present, &c. &c.—Such moral truths and maxims, along with brief statements of scientific facts, should meet the eye of the young in every direction, so as to be quite familiar to their minds; and they might occasionally be referred to, and explained and illustrated, in the discipline enforced, and the instructions communicated in school.

Furniture of the School.

In fitting up the principal apartment of the school, *it may be expedient* that the seats be moveable, in order that they may be occasionally arranged, so that the children may sit in one compact body, with their faces towards their instructor. But every seat or form should be furnished with a back, or rail, and a board before, on which the pupil may lean his arm, and feel quite comfortable and easy; for children very soon feel cramped and uneasy, when sitting long on bare forms, without such conveniences. Every boy should likewise have a wooden peg, either before or behind him, for hanging his hat and satchel. The seats in the two smaller apartments may be fitted up to accommodate those who are chiefly employed in writing, arithmetic, or geometry. In these, and various other arrangements, every minute circumstance should be attended to, which may contribute to the convenience and comfortable accommodation of the young, and to the maintenance of good order and regularity in all their movements.

Apparatus and Museum.—The principal furniture of every seminary intended for intellectual instruction should consist of specimens of the various objects connected with Natural History, and an apparatus for illustrating the popular branches of Physical science. These objects may be arranged under the usual divisions of *Zoology*, *Botany*, and *Mineralogy;* or, in other words, Animals, Vegetables, and Minerals. Under the first division may be arranged specimens of such domestic animals as can easily be procured; such as, the dog, the cat, the hare, the rabbit, the mole, the rat, the mouse, the bat, &c.—the peacock, the turkey, the partridge, the pigeon, the thrush, the linnet, *the canary,* the lark, the swallow, *the goldfinch, the chaffinch,* &c.—together with as many specimens of lizards, serpents, fishes, and insects, as can be most easily collected and preserved. Those foreign animals, such as the elephant, the camel, the lion, and the tiger, which cannot be directly exhibited, may be represented by coloured engravings. The leaves of different kinds of vegetables might be stuck on large sheets of drawing-paper, and occasionally exhibited for the purpose of distinguishing the different trees or shrubs to which they belong—several rare exotic plants might be kept in flower-pots—and the several vegetable plots around the seminary would furnish various specimens, in their natural state, of which physiological and botanical descriptions might be given.—Various fossils and *mineral* substances, which can easily be procured, may also be collected and arranged in classes, —such as, platina, silver, mercury, copper, iron, lead, bismuth, zinc, nickel, manganese, with specimens of their ores—chrysolites, garnets, agates, corundums, jaspers—sulphur, carbon, bitumen, amber, caoutchouc, asphalt, charcoal—quartz, feltspar, hornblend, &c.—To these may be added various specimens of artificial objects and of substances used in manufactures, as hemp, flax, cotton, silk, wool, and the various fabrics into which they are wrought.

The Apparatus may consist of such instruments as the following:—an electrical machine, an airpump, a barometer and thermometer, a magnetical apparatus, various glass tubes and phials, for hydrostatical, pneumatical and chemical experiments,—a telescope, a compound and a solar, or an oxy-hydrogen microscope, a camera-obscura, concave and convex mirrors, a phantasmagoria, a sundial, a planetarium, a terrestrial and celestial globe, with large planispheres of the heavens,—a burning lens or mirror, with various instruments of recreation on philosophical subjects, such as the optical paradox and deception, the diagonal opera-glass, the communicative mirror, the sensitive fishes, the sagacious swan, the cup of Tantalus, the fountain at command, &c. Models might also be procured of wind and water mills, steam-engines, diving-bells, common and forcing pumps, gasometers, and the different mechanical powers.

In addition to the above, it would be requisite to procure systematic sets of well-executed engravings, exhibiting a view of the most striking phenomena of nature and the processes of the arts,—such as, views of rivers, sea-coasts, islands, cities, towns, and villages, streets, squares, aqueducts, columns, arches, public buildings, rural landscapes, ranges of mountains, volcanoes, icebergs, basaltic columns, glaciers, caves, grottos, natural bridges—the operations of brewing, baking, spinning, weaving, pin-making, forging, glass-blowing, ship-building, &c.—in short, of every object, natural and artificial, which can convey to the mind a definite idea of the different parts which compose the landscape of the world, and the operations of human art. Coloured maps of the different portions of the globe, on a large scale, should likewise accompany such exhibitions, in order that the positions of the countries, where the different objects are to be found, may be pointed out. These pictorial representations may be hung around the walls, or on posts fitted up for that purpose, in such numbers as the allotted spaces will conveniently contain.—The specimens of natural history may be arranged around the walls of the school in presses, with wire or glass doors, so that the greater part of them may be exposed to view; and the apparatus and other articles may be deposited, when not in use, in the two large presses or closets formerly mentioned.

Although the various articles now alluded to could not be procured all at once, yet they might gradually be increased, and a considerable variety of them would doubtless be obtained in the way of donations from the private museums of liberal and philanthropic individuals in the vicinity around; and many of the little urchins who attend the school would rejoice in being instrumental in adding whatever they could procure to augment the splendour and variety of the museum.

There is one very simple instrument, not hitherto duly appreciated, which might be rendered subservient both to the amusement and the instruction of the young; and that is, *the Optical Diagonal Machine*, for viewing perspective engravings. This instrument, as sold by opticians, consists of a pedestal, somewhat resembling a large mahogany candlestick, having a plain mirror and a convex lens moveable at the top. The print to be viewed is placed on a table, before the instrument, in an inverted position. But this form of the instrument generally produces but a very slender effect, owing partly to the small diameter of the lens commonly used, and partly to the circumstance, that the engraving is generally visible to the eye, at the same time that the observer is viewing its magnified image through the machine. To obviate *these defects*, about seventeen years ago, I fitted up *a machine of* this kind on another and more simple plan, of which the following is a brief description. It consists of the following parts:—1. A box made of thin deal, 2 feet deep, 2 feet long, and 1 foot broad, open in front. 2. In the side opposite to the opening, and near the top, a circular hole, about 6 inches in diameter, is cut, into which a tube containing the lens is put, capable of being moved an inch or two backwards or forwards. The convex lens is 5½ inches diameter, and 20 inches focal distance, and its centre is about 20 inches above the bottom of the box. 3. The reflecting mirror—which is 12½ inches long and 8 inches broad, and which should be formed of the best English plate glass—the longest dimension being perpendicular to the horizon. This mirror is suspended, immediately before the lens, on two pieces of wood connected with a cross bar, which is capable of being moved backwards or forwards to its proper distance from the lens; and the mirror itself moves on two pivots, like a common dressing-glass, so as to stand at any required angle. When the instrument is properly adjusted, the mirror should stand at half a right angle to the horizon. The top of the box opens by means of a hinge, to afford a facility for adjusting the mirror. The perspective views are placed on the bottom of the box, parallel with the horizon, and in an inverted position with respect to the eye of the observer. The engravings should be at least 17 inches long and 11 inches broad, exclusive of the margins, and coloured after nature.—This instrument, thus fitted up, is greatly superior to the one commonly in *use, as nothing* is seen but the magnified *image of the objects,* and no conception can be formed of them to distract the attention, till the ob server actually looks through the instrument. Ever person who has looked through this instrument ha at once admitted its superiority to those of the com mon construction, and many individuals have go similar machines fitted up after this pattern. I may be fitted up at an expense not exceeding eigh teen or twenty shillings; that is, nine shillings fo the lens, seven shillings for the mirror, and two o three shillings for the box.

The following figures will convey some idea o this construction of the instrument. Fig. 1. repre sents a profile of the machine, one of the sides of th box being supposed to be removed. A is the mirro standing at half a right angle to the lens and th picture, with its back turned to the eye. B is th lens, fixed either in a tube or in a hole cut out of th *side of the* box next the eye. C D is the bottom o *the box, on* which the perspectives are placed. E

Fig. 1.

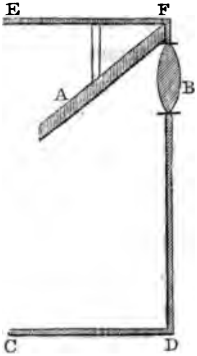
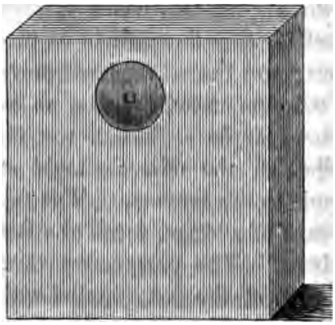


Fig. 2.



is the top of the box, from which the mirror is suspended. Fig. 2. represents a view of the back of the box, or that part which is next the eye when the observer is viewing the prints, in which L represents the lens by which the prints are magnified.

There is one glaring defect in the exhibitions made with this instrument, which has never yet been attempted to be remedied; and that is, that in every landscape the *right* side of the view appears where the *left* should be, which presents a confused and unnatural view, particularly of those objects and scenes with which we are acquainted. This defect may be remedied by cutting out or etching the landscape on the copperplate—not *reversed*, as is always done, but in its natural position; in which case, the engravings, when thrown off, would be reversed, like the picture formed by a common camera-obscura. Such engravings, when used for the Optical Diagonal Machine, would represent objects exactly in their natural positions; and if the true perspective of a street, a large hall, or a landscape, be accurately delineated, the scene will appear almost as natural and interesting as if we were viewing it from the point whence the picture was taken. As there are thousands of perspectives engraven expressly for this machine, I would humbly suggest to engravers and print-sellers the propriety of having such engravings etched on the plan now proposed. The fineness of the engraving is of very little consequence in such views, provided the perspective has been accurately attended to; but the colouring should be light and natural, and *very different* from the glaring and *clumsy daubings which* appear in most of the perspec*tives which are sold for* the use of this machine.

Such are some of the objects and external accommodations which might be procured for every village school. Such a school would form a striking contrast to most of the schools which exist in our country, particularly those which are found in many of our cities and towns, pent up in narrow closes and lanes, in the midst of filth, noise and gloom, destitute of pure air, where the children are packed like hounds in a kennel, cramped in their movements, and can scarcely find a passage from one part of the school-room to another, and where no objects of delight arrest their curiosity and enliven their spirits. Instead of such scanty and wretched accommodations—which may be considered as so many juvenile prison-houses, to which the young are frequently driven by dint of force—we should thus have it in our power to introduce them into a kind of magnificent *museum*, where every object would excite curiosity and arrest attention. Instead of associating with scholastic exercises the ideas of tasks, stripes and imprisonment, we should thus present to their view a delightful avenue and portal to the Temple of Knowledge, which would excite a spirit of observation, rouse their intellectual energies, and produce a high degree of pleasure and enjoyment. And nothing can be of more importance to the best interests of the young, and to the cause of the universal diffusion of knowledge, than to strew the path of science with flowers of every hue, and to render all the early associations connected with it exhilarating and cheerful. The road which leads to knowledge, moral virtue, happiness, and the higher enjoyments of the life to come, ought undoubtedly to wear a bright and alluring aspect, and to be divested of every object which has the appearance of austerity or gloom.

In towns, a number of these schools might be connected together in one large square or building, surrounded with as extensive a space as can be procured, forming one grand seminary, where children of all ranks might associate without distinction in their amusements and scholastic exercises. The amusements and the exercises of such numerous groups of the young, both within and without doors, would form a lively and interesting spectacle to every philanthropist; and public schools, when properly situated, and governed on Christian principles, so far from being a nuisance to the neighbourhood, as they are generally considered, would constitute one of the best ornaments, and the most delightful scenes, connected with general society. Where large towns diverge into extensive suburbs, a variety of distinct seminaries might be erected at proper distances from each other, to accommodate the inhabitants of the adjacent district, so that the children would not require to go too great a distance from their homes.

School-Books.

There are few things of more importance in the arrangements connected with education than the judicious selection and compilation of the *Books* intended to be put into the hands of the young. I have already offered a few strictures on the inefficiency of the school-books which have been most generally in use in our borough and parochial schools; and although of late years several improved school-collections have been introduced, scarcely any have yet appeared completely adapted to an intellectual system of tuition. The following general principles ought to be recognised in the compilation of every class-book for the use of schools:—

1. That the subjects introduced be *level to the comprehension* of those for whose use the book is intended.

2. That every article it contains be *calculated to convey some portion of useful knowledge.*

3. That the selections in general have *a moral tendency*, and that every thing that might foster a spirit of pride, avarice, ambition or warfare, be carefully excluded.

4. That moral and physical *facts* should form a prominent feature in such books, and mere *fictions* be entirely discarded.

5. That the lessons be so constructed, that every sentiment and description may produce *an accurate and well-defined idea* in the minds of the young.

These rules proceed on the assumption, that *the communication of ideas—the elements of thought—and the formation of moral character, are the great and ultimate objects of education.*

In the first books put into the hands of children, the lessons should be so constructed that *the leading ideas they contain, or the objects they describe, may be immediately pointed out, either by means of the specimens contained in the museum, by pictorial representations, or by the objects around them in the scene of nature;* so that every word, or at least every description contained in the lesson, may be associated in the mind of the child with the *idea* of its objects. *Hence the* propriety, in the first instance, of restricting the descriptive lessons solely to *sensible objects.* It is through the medium of the senses that the elements of all our knowledge are derived. We perceive, in the first instance, a variety of objects which immediately surround us, and gradually become acquainted with some of their qualities. As we advance in life, and mingle in society, and make excursions from one place to another, the number of our perceptions is indefinitely increased. We have the power of presenting to the view of the mind the *images* or *ideas* of these objects at pleasure, even when the objects which first produced them are removed. Those ideas are nothing else than *renewed representations* of what we have at any time perceived or felt through the medium of the organs of sensation. Having received such impressions or ideas, the mind has the faculty of contemplating them at pleasure, whether their objects be present or absent —of combining them together, of compounding and decompounding them, and of modifying, comparing, and examining them, in an infinite variety of lights; by which means it is enabled to enlarge the objects of its perception and contemplation, and to acquire an inexhaustible treasure of other ideas, distinct from the former, though necessarily resulting from them. Such is the origin and progress of all our knowledge—and thus the human mind pursues its course from simple perceptions and trains of ideas, and from one discovery and chain of reasoning to another, till it rises from the first dawnings of reason to the full blaze of intellectual light, and to the height of moral improvement.

These considerations evidently point out the mode in which instruction ought to be communicated, and the objects towards which the youthful mind should, in the first instance, be directed—for want of attention to which, many of our school-books are nearly as inefficient for the purpose intended as if they had been written in a foreign language. I have just now lying before me two initiatory books lately published, entitled, "First" and "Second Books for Children," in which there is not a single sentence conveying the idea of a sentiment or fact, nor even a single word, that will produce an idea in the mind of a child—every page being completely occupied with such sounds as these—"gra, cre, dre, dro—gaff, puff, groff, sniff—gyve, gyre, gybe—baffle, socle, struggle," &c. &c. Such books can never be interesting to the young, and must present to their view nothing but a bleak and thorny path to the temple of knowledge. Nor will such vague sentences as the following, with which our *primers* abound, produce a much better effect:—"My son, walk not in the way of bad men; for bad men go on in sin all the day.—Set thy heart on the right way, and mind the law of the Lord.—Do not break the laws of God, and shun the ways that lead to death," &c. Such *sombre* sentiments and exhortations, however sound the morality they inculcate, can never produce a well-defined idea in the mind of a child, or excite to moral action, and consequently cannot have the effect of producing pleasing emotions and a taste for knowledge.—Every sentence of a child's lesson should convey to his mind a *picture* or representation *of some object;* and it is quite possible to accomplish *this end, by* simplifying our descriptions, and selecting those sensible objects which are calculated to attract attention, and which may be presented to the view. For example:—

> "The sun shines.—The sky is blue, when it is not covered with clouds.—The stars shine forth at night.—Snow is white.—Rain comes from the clouds.—Gold is yellow; silver is white; copper is red.—Lead is heavy; cork is light; coal is black.—Trees grow in the fields; they have roots, branches and leaves.—Flowers grow in the fields and gardens; some of them are red, some are white, some are yellow, others are blue.—Corn grows in the fields; when it is ripe it is cut down, and ground into meal, and then baked into bread.—A dog has a head, two ears, four feet, and a tail.—A bird has a beak, two eyes, two wings, two legs, and a tail; it is covered with feathers, it chirrups and sings, and flies through the air.—When we strike a small bell with a key, it sends forth a sound.—When we shut our eyes, all appears dark around us, and we can see nothing.—When we open our eyes, we can see the sky, the clouds, the fields, the trees, the houses; and men, women, and children, walking along the road, or sitting in the school.—The sun rises in the east, and when he rises it is day; when he sets in the west, it is night, and the stars appear in the sky.—The sun shines upon the trees, the houses, and the water, and every thing looks bright and beautiful when he shines upon it.—He shines in all countries, over all the earth.—He is so bright, that we cannot look at him, but when he is covered with thin clouds.—If you take a piece of red or green glass, and hold it between your eye and the sun, you may look at him without hurting your eyes.—The sun gives us light and heat, and he is the most bright and glorious work of God that can be seen in the whole world," &c.

Such simple lessons may be made to produce a well-defined idea in the mind of every child, by exhibiting to his view, at the moment he is reading, the very object which his lesson describes; and if the object is not present, it may be represented by an engraving. When his lesson states that "lead is heavy, and cork is light," a piece of cork and a piece of lead of the same size may be put into his hands, which will not only convince him of the fact, but will enable him afterwards to recognise these substances. When he reads that "a bell, when struck by a piece of iron, produces a sound," the experiment may be exhibited before him—which circumstances will have a powerful tendency to arrest his attention, and keep alive his interest in the subject of his lessons.

The first class-books for schools should, therefore, be confined chiefly to descriptions of the appearances and qualities of such objects as may be exhibited to the senses of children, and instantly associated with the vocables of which their lessons consist. Descriptions of the forms and habits of *animals*, such as the dog, the cow, the ass, the mole, the elephant, the rein-deer, the camelopard, &c.—of *vegetables*, the parts of which they consist, the places where they grow, the manner in which they are produced and cultivated, their fruits and flowers, and numberless varieties—of *minerals*, their various qualities, colours, and appearances, the places whence they are procured, the processes through which they pass, and the uses to which they are subservient in human life—might form one department of an initiatory class-book. Descriptions of the more obvious phenomena of nature, such as the apparent motions of the heavens, the rising and setting of the sun, the phases of the moon, the movements and aspects of the clouds, the phenomena of thunder and lightning, winds, rain, hail and snow; the most striking objects which appear in towns, villages, and throughout the fields, on hills, mountains, valleys, rivers, and sea-coasts—might form another department of a school-book; care being taken that the descriptions be sufficiently simple and vivid, and that long and hard words be *as much as* possible avoided. Descriptions of some of the innocent games and amusements of the young, accompanied with delineations of some of them, might likewise be introduced. As a supplement or companion to a book of this kind, descriptions might be given of the particular objects connected with the locality in which the school is situated. In the first place, the school itself, with the various objects it contains; the trees, flowers, and shrubbery which surround it; the roads, streets, lanes, and walks, connected with the town or village; and the most remarkable public buildings it contains—might be particularly described, and the descriptions accompanied with a plan or map of the place and its vicinity, and views of the most interesting objects, rural and architectural, which are connected with it. Such descriptions would always be read with interest by the young, and would excite them to habits of observation and reflection, besides affording them materials for conversation in their social walks and intercourses. Children are always extremely fond of having their ideas of sensible objects enlarged, and view, with a great degree of interest and pleasure, the representations of them in well-executed engravings. Yet, strange to tell, when I attended school, it would have been considered as a crime to have looked into a book which contained engravings. I recollect of a boy having brought to school a copy of "The Three Hundred Animals," but it was carefully concealed from the teacher, and from most of the scholars, through fear of punishment. We were so anxious, however, to see the novel figures it contained—the magnified picture of the louse *and the flea*, the bee-hive, the *peacock, the elephant, and* the whale—that we gave pins, marbles, cherry-stones, gooseberries, and even sometimes a whole *halfpenny*, to the proprietor, for half an hour's perusal of it.

Some persons will perhaps be disposed to object, that such lessons as I now allude to are either trifling, or, at least, not so important as the moral lessons generally introduced into our initiatory books. In reply to such an insinuation, it may be sufficient to say, that it can never be unimportant to convey a well-defined idea of any object worthy of being known, to the mind of a child, if it is admitted that the great object of education is to communicate the elements of thought. And as to producing moral impressions, every pious and intelligent teacher has an opportunity afforded of impressing the minds of his pupils with a sense of the Goodness, Omnipresence, and Agency of God, every time he is teaching a lesson which is descriptive of the works of nature. Morality can never be effectually taught to the young by vague exhortations, and general rules and maxims, —more especially when such instructions are not thoroughly understood. If we wish to impress the youthful mind with the odiousness of vice, and the excellence of virtue, we must fix upon *particular actions*, apply to them moral rules or precepts, and illustrate, by familiar examples, their nature and tendency. Every teacher has daily an opportunity of directing the attention of his pupils to certain actions, both good and bad, which appear in their general conduct; and the judicious remarks he makes on the temper and dispositions manifested by particular individuals, will make a more definite and lasting impression upon the minds of the young than can be produced by the mere reading or repetition of moral maxims or general rules. And every child who has been regularly taught to understand every sentence he reads, and to exercise his judgment upon it, will undoubtedly be better prepared than others for forming a judgment of the propriety or impropriety of certain moral actions, when they are explained to him with simplicity and clearness. In a more advanced stage of education, however, moral lessons, accompanied with examples of virtues and vices, may with great propriety be introduced.

Some may likewise be disposed to inquire whether I intend to set aside exercises on the powers of the letters and the elementary sounds. Although I do not attach so much importance to such exercises as has generally been done, yet I would not altogether set them aside. Lists of monosyllables, exemplifying the long and short sounds of the vowels, and the pronunciation peculiar to certain combinations of the consonants, might be pasted upon cards, and hung up in view of the different classes; on which they might be occasionally exercised, rather as a kind of interlude or amusement than as a serious task. But it appears quite preposterous to confine a child for four or five months to the pronunciation of mere sounds, to which no ideas are attached. And, from a good deal of experience, I am convinced that the true pronunciation of words is to be acquired more from reading interesting lessons, and from the occasional remarks of the teacher on particular sounds as they occur, than by long and tedious exercises on the orthography of the language.

In a more advanced stage of education, after the pupil has read two or three small volumes consisting of such easy descriptive pieces as those alluded to above, *a volume consisting of selections of a higher order* may be put into his hands. So early as the year 1809, I had formed, and partly executed, the plan of a volume of this description, calculated to excite the attention of the young, to convey real knowledge to their minds, and to render the exercise of reading pleasant and profitable. In some papers connected with this projected work, I find the following "General outline of Contents:"—

1. Short and familiar lessons. 2. *Narratives* of real occurrences and facts. 3. *Juvenile Biography*—comprising anecdotes and lives of young persons who had made early progress in knowledge: early life of Sir I. Newton, of Ferguson the astronomer, of Pascal, Gassendi, Grotius, Crichton, Horrox, Baratiere, &c. &c. 4. *Selections from Sacred History:* History of the creation and fall of man—of the deluge—of the destruction of Sodom—of the lives of Abraham, Isaac, Jacob, Joseph, Moses, and Samuel—of the deliverance of the Israelites from Egypt, and the leading events which befel them in the wilderness and in Canaan—of the life and translation of Elijah—of the deliverances of Jonah, Daniel, Shadrach, Meshech, and Abednego; Paul, Peter, &c. —of the circumstances which attended the birth, transfiguration, crucifixion, resurrection, and ascension of Jesus Christ, and the preaching of the Apostles—with illustrative remarks and observations, a map of the land of Judea, plans of the tabernacle and temple, and figures of the sacred utensils and vestments used in the Jewish worship. 5. *Descriptions of objects connected with Natural History and Natural Philosophy:* Forms, habits, and instincts of *animals*, with anecdotes; *Natural curiosities*—such as basaltic columns, boiling springs, icebergs, glaciers, volcanoes, whirlpools, natural bridges, subterraneous caverns, Banian tree, &c.; Brief description of the parts and functions of the human body —the organs of sense, and the different kinds of knowledge they communicate. *Phenomena of Nature in the atmosphere and the heavens:* Properties of air—weight and pressure of the atmosphere, with descriptions of a few simple illustrative experiments; Descriptions of thunder-storms, luminous and fiery meteors, the aurora-borealis, the clouds, the rainbow, the ignis-fatuus, rain, hail, dew, waterspouts, hurricanes, sounds, and echoes; Descriptions of the mechanical powers—of electrical, magnetical, and optical instruments—of the apparent motions of the heavenly

bodies—of the more interesting phenomena connected with the earth and the other bodies which compose the solar system, &c. 6. *Illustrations and descriptions of certain arts and trades:* Pin-making, weaving, printing, paper-making, glass-blowing, &c. 7. *Useful hints* on various subjects: On taking care of books—cautions respecting the preservation of health—the dangers arising from fire, confined air, noxious gases—the prevention of accidents and infectious diseases—rules for the promotion of order, cleanliness, and activity; for cooking victuals, eradicating stains, nursing children, washing, dressing, laying out garden plots, and for promoting domestic economy—characteristics of poisonous plants, cautions in relation to unripe fruits, &c. &c. 8. *Short moral maxims, pithy sayings, and rules for the general regulation of conduct.* 9. *Dialogues:* "The little Philosopher," "The King and the Miller," &c. 10. *Customs and manners of nations.* Sketch of *Geography,*—descriptions of cities, towns, and remarkable places. 11. *Entertaining experiments*—magnetical, electrical, pneumatical, galvanic, mechanical, chemical, &c. 12. *Juvenile amusements:* flying the kite, fives, peg-top, swinging, bathing, &c., with cautionary maxims. 13. *Select Poetry,* consisting only of pieces interesting to the young, and level to their capacity. 14. *Lessons in written characters,* for habituating children to read manuscripts and epistolary correspondence. 15. *List of names and qualities of natural and artificial objects,* as exercises in *spelling;* during which, short descriptions might be given of the nature and properties of the different objects whose names are proposed as spelling-exercises. 16. *List of Greek and Latin primitives and prepositions,* with examples of their meaning and the effect of their composition in English words. 17. *Definitions of scientific terms,* and of the more difficult words which occur in the lessons. 18. *Tables of money, weights, and measures,* with illustrations of the value of coins, the capacity of measures, linear dimensions, &c. 19. *A general set of queries,* referring to some of the principal subjects described in the lessons.

Such was the outline of a class-book which was intended to be published six and twenty years ago. One peculiarity by which it was intended to be distinguished, was—that *a set of questions without answers, bearing on every particular object and circumstance detailed, was to be appended to each lesson, for exercising the attention and judgment of the pupil, previous to his being examined on the subject.* The various subjects introduced were intended to be partly original composition, partly compilations, and partly selections, abridged, modified, or altered, to suit the object in view. Fables and fictitious stories were to be entirely discarded, and the leading facts to be illustrated by engravings. After composing a preface or introduction, showing the utility of such a work, and obviating objections that might be made to its plan, and having proceeded a certain length in its compilation, I was induced to lay aside the design, in consequence of the apathy and indifference of most of the teachers I conversed with on the subject. Some of them who stood high on the ranks of city and parochial schoolmasters told me plainly, that they considered it as no part of their duty to teach their pupils any thing but reading or *pronunciation*, and that if their parents wished them to understand what they read, they might teach them at home.

Such a school-book is still a desideratum, notwithstanding some improvements which have lately been made in school-collections. Whether it would be expedient to publish such a work at the present time, the public must determine. If properly executed, it would require a considerable degree of labour and research, a discriminating judgment, a familiar acquaintance with the tastes and dispositions of the young, and a talent for simplifying descriptions, and rendering them perspicuous to a youthful understanding. Such a book could not be constructed either by the scissors, or by merely copying or abridging pieces from various authors; but by entering thoroughly into the spirit of every subject, and modifying it in such a manner as to interest the affections, and to convey well-defined ideas to the minds of those for whose improvement it is intended. The formation of the questions on each lesson would require a considerable share of judgment and discrimination, so as to render them perspicuous and specific. Most of the questions of this kind which have been attempted in certain school-books, are so general and vague, that they serve no useful purpose either to teacher or scholar, and are frequently so worded and arranged, that a pupil might find out the answers without understanding them or exercising his own judgment. It is, unquestionably, an eligible plan, in every department of learning, to have sets of questions without answers, bearing on every branch of study. Such questions tend to excite the curiosity of the pupil, to exercise his judgment, and to arrest his attention to the subject; and the finding out of the proper answers affords him a certain degree of pleasure. They are also of utility to the teacher, and may suggest to him numerous other subordinate questions connected with the subject. The old plan of constructing books by way of "*Question and Answer*," and causing the vocables of the different answers to be committed to memory without being understood, is too absurd to require a moment's consideration.

It will be admitted, I presume, by every intelligent person, that a class-book, judiciously arranged and executed, and comprising such subjects as above stated, would be far more interesting to the young, and calculated to convey to their minds a much greater portion of useful information, than all the "Beauties of eminent Writers," "Speeches in the Roman Senate," "English Readers," "Tyro's Guides," and "Oratorical Class-books," which have been so long in use in our English schools. Such a book should contain hints and sketches of every thing that has a tendency to expand the intellectual views, and which may be applied to useful practical purposes in the several departments of human life, and be completely purified from every thing that might produce national prejudice and partiality, the spirit of contention and warfare, and the indulgence of selfish and malignant affections—in short, a book which might be read with pleasure by the young, who understood its language, in every nation of the world. In the hands of a judicious teacher, every idea it contained might be communicated to the understandings of the pupils; and, as early impressions are the most lasting, the sentiments conveyed, and the impressions thus made upon the mind, could not fail to be of incalculable service to them throughout the whole course of their lives. The foundations of useful knowledge would be laid, and a taste for intellectual pleasures induced, which would stimulate them to still higher pursuits and investigations as they advanced in life.—Nor need we have the least fear that children, at an early age, would be incapable of acquiring such knowledge as that to which I allude. If they have not hitherto acquired it, it is because such knowledge as they were capable of acquiring has seldom been judiciously presented before them. We have compelled them to "feed upon ashes"—we have offered them "scorpions" instead of "eggs," and "stones" instead of "bread;" and because they were unable to masticate and digest such substances, we have deprived them of wholesome and nutritious food, and wondered why they have not been strengthened and invigorated. When truth is simplified by familiar illustrations taken from objects with which they are acquainted, and confirmed by appeals to their senses, they imbibe it with avidity, and frequently retain the impressions thus made to the latest period of their existence. The celebrated Fenelon has observed, that "Before they are thought capable of receiving any instruction, or the least pains taken with them, they learn a language. Many children at four years of age can speak their mother tongue, though not with the same accuracy or grammatical precision, yet with greater readiness and fulness than most scholars do a foreign language after the study of a whole life." This circumstance certainly indicates no small degree of intellectual energy and acumen. And to this I may add, that they discover their intellectual powers by connecting the *idea* with the *sign* of it, and acquire many notions of good and evil, right and wrong, in that early period of life. Such are their powers of discrimination, that they can distinguish the characters and dispositions of those with whom they associate, and frequently know the tempers and weaknesses of their parents much better than the parents know theirs, and are dextrous enough to avail themselves of that knowledge in order to obtain their desires and gratify their humours.

A *third series of school-books* might consist of *popular systems of the sciences*, and descriptions in relation to *the mechanical and liberal arts*. The fundamental principles and the most interesting facts connected with *botany, mineralogy*, zoology, geo-*graphy, geology, geometry*, astronomy, experimental philosophy, and chemistry—and likewise those connected with the arts of weaving, book-binding, printing, clock and watch making, brass-founding, carpentry, &c.—might be familiarly detailed, and illustrated with as many plans and engravings as the different subjects might require. The general knowledge of the sciences, which the pupil would acquire from such compilations, would prepare him for afterwards entering on the study of particular sciences, when their principles and applications would be illustrated in more minute detail. The sketches of the different arts and trades would unfold to him some of the leading processes and operations peculiar to the several mechanical employments, and lead him to determine which of these would be most congenial to his own taste and genius.—In compiling such sketches of the sciences and arts, a considerable degree of knowledge, taste, and discrimination, would be requisite. Every thing that is intricate or abstruse, or not level to the comprehension of young people from the age of ten to the age of fourteen years, should be omitted. Vivid and familiar descriptions of facts and scenery, details of interesting experiments, and engravings of natural and artificial objects, should accompany the explanations of the fundamental principles of the different sciences. In short, every thing should be introduced which can be illustrated by sensible objects, and every thing discarded which the senses cannot easily appreciate. Mere *skeletons* of the sciences would be quite uninteresting, and would produce no good effect. If any *particular* science could not be comprehensively illustrated in the space allotted for its details, a selection of its more prominent and popular departments might be substituted, which would be quite sufficient for communicating a general view of the subject, and inducing a taste for its further prosecution at a future period—which is all that is requisite to be aimed at in the first exhibitions of science to the youthful mind.

Another class of school-books might be chiefly *Historical.* These should comprise a lucid and comprehensive view of the leading events which have happened from the creation to the present time, omitting those details which would either be improper to be exhibited, or which might prove uninteresting to the young. As a supplement to such a work, a more detailed history might be given of the particular nation or country in which the school is situated.—In compiling such historical works, great caution is requisite that no scenes be exhibited, and no sentiments inculcated, that would pollute the minds of the young, or foster malignant affections. Many of our historians detail the convulsions of nations, and the horrid scenes of devastation and carnage, with a revolting degree of apathy, without interweaving any reflections tending to show the folly and wickedness of war, and to denounce those malignant passions from which it springs. Nay, we frequently find the writings of historians abounding with panegyrics on public robbers and desperadoes, encomiums on war and on warriors, and designating the worst enemies of the human race as *patriots* and illustrious heroes. Hence it has happened, that the study of *history, instead of* leading the mind to *contemplate the character of* the Moral Governor of the world, and the retributions of his providence, and to mourn over the malevolent passions and the depravity of man—has not unfrequently tended to excite desires after the acquisition of false glory, and to cherish a spirit of contention and warfare,—the effects of which are visible, even at the present moment, in the ambitious projects which are carrying forward by haughty despots and their obsequious ministers, and in the devastations which are committing, and the contests which are taking place, in almost every region of the globe. If we wish to counteract the effects of pagan maxims and morality, and to imbue the minds of our youth with *Christian* principles and feelings, we must carefully guard against the influence of such antichristian sentiments. The history of all nations ought to be considered, not merely as the exploits of kings and heroes, but as the *history of the providential dispensations of the Almighty* towards the human race, and the *history of the moral character of mankind.* We should study it, not merely, or chiefly, for the purpose of admiring and imitating the exploits of those who have been extolled as illustrious characters, (for there are few of them whose deeds deserve our imitation)—but for expanding our views of the character and moral government of the Ruler of the Universe—for confirming the representations given in the Scriptures of the depravity of man—and for exciting an abhorrence of those lawless passions and deeds of injustice, which have covered the earth with carnage and desolation, and entailed misery upon the race of man. If we wish to study patterns of moral virtue worthy of imitation, we have the example of Jesus Christ set before us, as the pattern of every excellence, "who was holy, harmless, and undefiled,"—"who did no sin, neither was guile found in his mouth; who, when he was reviled, reviled not again; when he suffered he threatened not, but committed his cause to him who judgeth righteously." We have likewise the examples of his holy prophets and apostles, men as far superior in their moral principles and conduct to the most distinguished sages of Greece and Rome, as the Christian religion is superior to all the systems of theology in the pagan world.—In compiling histories for the young, the historian ought, therefore, to pause at certain periods and events, and direct the attention of his readers to what is moral or immoral in the actions detailed, to what is worthy of being approved or condemned in the scenes described, as determined by the principles and rules of Christianity. He should direct the attention of the young to the scenes of horror which a spirit of ambition and revenge has created, to the malignant passions it has engendered, and to its contrariety to the spirit of true religion and the best interests of man. He should lead them to remark the justice and long-suffering of the Governor of the world—the retributions of his providence in the case of nations and individuals—the accomplishment of Divine predictions—and the evidences which the records of history afford, that man is no longer in a paradisiacal condition, but has fallen from his high estate. In short, he should direct their views to the *means* by which the spirit of warfare may be counteracted and destroyed,—to the happy scenes which would be realized were a spirit of *philanthropy* to reign triumphant,—and to that glorious era, foretold by ancient prophets, when the nations "shall beat their swords into ploughshares, and their spears into pruninghooks, and learn the art of war no more." Were history studied in connection with such views and instructions,—instead of fostering malignant passions—it might become a handmaid to science and religion, and be rendered subservient for directing the mind to the Great Ruler of the nations, and the plans of his moral government, and for stimulating the exercise of those benevolent affections by which the tribes of mankind may be united in harmony, and the world restored to tranquillity and repose.

All the class-books now described should be embellished with *engravings*, wherever they appear requisite for illustrating the descriptions contained in the text. The subjects of such engravings should not only be accurately delineated, but delicately *coloured after nature*, so as to convey, as nearly as possible, a correct and vivid impression of the objects intended to be represented. Nothing is more pleasing and gratifying to the young, than accurate engravings of the subjects about which they read, and nothing has a greater tendency to convey well-defined ideas of those objects which are not present to the senses, and to impress them indelibly upon the imagination. But we have hitherto had no school-books embellished with such engravings as those to which I allude. The *expense* of such books might probably be objected to, as an argument against their introduction. But if the great end of education be carefully kept in view, and the *importance* of conveying clear and comprehensive ideas to the rising generation be duly weighed, no considerations of expense ought to deter us from the execution of any plan by which instruction in *the elements of thought* may be rendered delightful and efficient. Society, if once aroused to consider the importance of an enlightened education, would find no difficulty in defraying every expense connected with its arrangements. If such books were in universal request, and, consequently, many thousands of them thrown off at one impression, they might be afforded at a price very little higher than that of the paltry and inefficient class-books which have been so long in use in our scholastic establishments.

The series of books now described should be accompanied with *dictionaries*, and other books of reference, for obtaining definitions of words and descriptions of the objects of nature and the terms of science and art. These dictionaries, along with clear definitions of English words and synonymes, should contain short definitions of Latin, Greek, and French primitives and phrases, particularly those which have been adopted into our language, and which, in composition, modify the meaning of many of our own words. The Latin and Greek *prepositions* should be explained, and their force in the composition of English words, and in the terms of art and science, particularly illustrated. Portable cyclopedias or technological dictionaries, with numerous illustrative cuts, such as Crabb's "Dictionary of General Knowledge," would likewise be highly requisite for the occasional use of the higher or primary classes, in all our schools.

CHAPTER VI.

Method of Teaching, and the Departments of Knowledge which should be taught in every Seminary.

THE teacher being understood to have a school furnished with the accommodations, museum, and apparatus formerly described, and with a series of books adapted to intellectual instruction—I shall now offer a few *hints* on the mode in which the several departments of instruction might be conducted.

SECTION I.—*English Reading.*

In throwing out a few hints on this department, I shall take it for granted that the pupils have acquired a knowledge of the alphabet, in the manner in which it is generally taught in infant schools, and that they are qualified to read, with a certain degree of ease, a few short lessons, consisting of words of one or two syllables. Let us suppose, for example, such a lesson as the following, on the general nature and qualities of certain objects, to be the subject of attention.

1. A bell gives a brisk sound when we strike it with a key, or with a stone, or with a large nail. If we strike an egg-cup made of wood, or if we strike a board or the table with a key, none of these things will give such a sound. A wine-glass will also produce a pretty brisk sound; but if we strike it hard with a nail or a stone, it will break. We hear every sound by means of our ears, which God hath formed and placed on each side of our *heads, that* we might listen to our teachers, and be able to talk *with one another.*—2. The light which flows from the sun *consists of seven* colours; red, orange, yellow, green, blue, indigo

and violet. The earth is spread over with most of these colours; the fields appear spread over with green, some parts with a light green, and some parts with a dark green colour. Fir trees and some poplar trees are dark green, corn and grass are of a light green colour. A rose is red; some roses are white. The crowfoot, the cowslip, the crocus, and the wallflower, are yellow. Furze and broom have also pretty yellow flowers. The bluebottle flower, and some hyacinths, are of a blue colour. Some daisies are red, some are white, and some have two or three colours. The corn in the fields, the grass in the meadows, and the leaves of trees, are green.—3. Iron is heavy, copper is heavier, lead is heaviest. Lead will sink, if you throw it into a bason of water, but a cork will swim on the top of the water. A stone will sink in water, but a piece of light wood will swim; and if you push the wood down with your hand to the bottom of the bason, it will quickly rise again to the top.—4. The sun shines from the heavens, and gives us light all the day. He is so bright that we can scarcely look up to him. If we were to look straight towards the sun, it would dazzle our eyes. But if we take a piece of glass that is red or dark green, or a glass that is covered all over with the smoke of a candle, we may look through this glass to the sun without dazzling our eyes. The sun sometimes shines very bright, and sometimes he is covered with clouds. The sun is giving us light at this moment, but we cannot see him. Can any of you tell the reason why the sun is not seen just now when he is giving us light? What hides him from our sight? The sky sometimes appears clear, like a large blue dome or half-globe, and sometimes it is all over covered with dark clouds. When the sun rises in the east, that part of the sky is often covered with bright red and yellow clouds; and when he sets in the evening in the west, the same kind of clouds are sometimes seen. God made the sun, the moon, and the stars; he also made the fields, the trees, and the corn; he formed our bodies and our souls; he gave us eyes to see with, ears, that we might hear, hands to handle with, feet to walk with, and he preserves us every moment. He is present with us in this place, and sees all that we do, though we cannot see him. Let us give thanks to God, for he is good, and let us do what he commands.

None, I presume, will be disposed to deny, that children of five years of age, who have been previously accustomed to observe the facts around them, may easily be made, under the guidance of an intelligent teacher, to understand every idea contained in such lessons as the above. The lesson should first be distinctly and *deliberately read over* by the class two or three times, and then illustrated by objects and experiments. Lesson 1. may be illustrated by a small hand-bell, a key, a wine-glass, and a piece of wood; and some of the children might be permitted to try the experiments, which would gratify their natural curiosity, and excite an interest in the subject of their lesson—it being always understood that the teacher accompanies such experiments with familiar explanations and remarks.—For illustrating Lesson 2, it would be requisite to have a large white pasteboard painted with the seven primary colours of light, so that the pupils might be exercised upon it, in naming and distinguishing the different colours. The objects whose colours are stated might be shown them; or if any of these objects are not at hand, they may be exhibited by coloured engravings.—To illustrate Lesson 3, a pair of scales, a bason of water, a piece of cork, and three pieces of iron, copper, and lead, *of equal size*, will be required, and then the experiment of weighing the pieces, and plunging them into the water, may be exhibited to the class. When explaining Lesson 4, a piece of stained or smoked glass may be put into the hands of the pupils, when the sun is visible, that each of them may try the experiment. The questions proposed in this lesson, which are not answered, may serve to exercise the judgment of the pupils. They are understood to refer to the circumstance of a *cloudy* day. Various simple questions of this description should be embodied in the lessons, to give scope to youthful judgment and ingenuity. The latter part of this lesson might afford an opportunity to the teacher of impressing the minds of the class with a sense of the presence, goodness, and universal agency, of the Creator.—It will scarcely be denied, that in this way instruction may be blended with amusement, and that a considerable variety of useful knowledge might be gradually imparted to the juvenile mind.

Descriptions of *animals* would form another interesting class of lessons for the young, as in the following example:—

The Peacock.

The peacock is the most beautiful bird in the world. Its beauty excels that of all other animals. Its bill is about two inches long, and is of a brown colour. Its head and neck, and part of its breast, are of a dark blue colour. On the top of its head there is a tuft of pretty green feathers, which adds to its beauty. Its neck is long and slender, and its back of a whitish grey colour, spotted with black. But the plumage and tail of this splendid bird are the most beautiful parts of its body. They are adorned with colours so rich and various, that no human art can make any thing like them. When this bird walks in the sunshine, every moment produces a thousand shades of colouring, which are beautiful and ever varying. These fine colours exceed the lustre of the finest flowers of the fields and gardens. But, like the flowers, they fade every year, and the feathers drop from their bodies, and are again renewed every spring. The length of the peacock, from the tip of the bill to the end tail, is about three feet eight inches. Some of its longe thers are four feet long. This bird appears haughty and and loves to display its fine colours to those who are looki like those little boys and girls who are proud of their fine c The peacock perches upon high places, and lives upon and other kinds of grain. Its beautiful plumage does not before it is nearly three years old. When it drops its fine fe in the time of harvest, it does not like to be seen, but se hide itself in some gloomy place. Though the peacock beautiful, it utters a very harsh and disgusting cry. For hours it will repeat the cry of *Eko, eko, eko,* with the mo eous noise. It cannot sing a pleasant song, like the lin the blackbird. It is so wicked that it will scarcely live w other bird, except the pigeon; and it tears and spoils eve it gets a hold of with its bill. This bird was first broug a far distant country, from the East Indies, and it lives to of twenty-five years. Little boys and girls, be not like t cock, proud and vain, on account of your beauty and yo clothes; for humility and goodness are always to be pref beauty.

In teaching this and similar lessons, a specimen of the animal described should be pla a table opposite the class, and its different par colours pointed out; but if a specimen is not at a coloured engraving should be exhibited, eit the class-book, or on a large sheet pasted on a board. The terms, *tuft, plumage, bill, pe* &c. should be explained by a reference to the or specimen, and the length of a yard, foot an or any number of these combined, should be dis explained and exhibited, by means of rods of di lengths.—There is another class of lessons juvenile classes, which might consist chiefly *scriptions and exhibitions of entertaining exper* For example—

The Sagacious Swan.

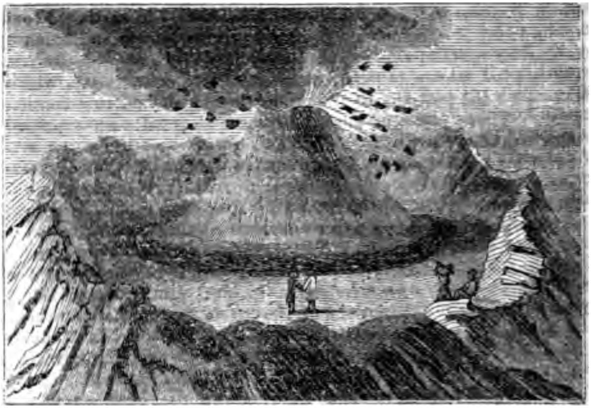
There is a nice little amusing toy which is sold in so shops, called the Sagacious Swan. This swan is made thin tin-plate, or other light substance, and is hollow within. Near its mouth, in the inside, is fixed a small magnet, or loadstone. The swan is placed in a large bason full of water, in which it swims. A small rod of metal about five or six inches long, with a piece of bread fastened to one end of it, is held out to the swan, at the distance of an inch or two from its mouth. The swan then moves forward after the rod, as if it wished to take hold of the piece of bread. If you move the rod gently from the swan, it will swim after it all round the bason, and from one side of it to another, as if it were a living swan swimming after its food. But if you present the other end of the rod to the swan, it will swim backwards, and try to avoid it, as if you were wishing to mock or insult it.—The rod on which the piece of bread is fastened is also a loadstone. A loadstone attracts or draws to it needles, and any small bits of iron or steel that are near it. Every loadstone has two ends, which are called its north and south poles. When the north pole of one loadstone is brought near to the south pole of another, they will attract each other. But when the north pole of one is brought near to the north pole of another, they will repel or move from each other. When a small loadstone is placed on a piece of cork or light wood, and made to swim in a bason of water, it will turn itself round, till it point nearly north and south.—The compass which directs sailors in their course along the sea, consists of a small loadstone, which moves upon a pivot. It shows them how to steer to the East and the West, to the North and the South. By means of this small bit of loadstone, they can find their way over great seas and oceans, to the East Indies and America, and round the whole world. God created the loadstone for this purpose; and if we had never known its properties, we should never have been able to bring tea from China, or sugar from the West Indies, or to send Bibles to the people that dwell in the far-distant isles of the sea.

This lesson would of course require to be illustrated by the philosophical toy which it describes. This toy could be easily constructed by any ingenious mechanic, or it may be purchased for about five or six shillings. The experiment of placing a small magnet upon a piece of cork, and suspending it on the water, to show how it fixes itself north and south, might also be exhibited; and by taking another magnet, and suspending it in the same manner opposite to the first, the attraction and repulsion of the different poles of the two magnets might be shown, which would explain the phenomena of the sagacious swan. The power of the magnet in attracting needles, small keys, penknives, &c. might at the same time be shown. A pocket-compass might likewise be exhibited, and its use described; and the attractive and repulsive powers of the magnet shown, by presenting it alternately to the north and south poles of the compass-needle. It might also be shown, that the magnetic power passes through interposing substances, by placing a board between the pocket-compass and the magnet, and causing the pupils to observe, that the needle is made to turn round, by the influence of the magnet transmitted through the board.—This is only one example, out of a hundred that might be produced, of rendering entertaining experiments interesting and instructive to children; and when truths are, in this way, associated with sensible representations and experiments, they are seldom erased from their minds to the latest periods of their existence.

In the next stage of English reading, the pupil might enter on the perusal of a volume containing lessons on subjects of a higher order, such as those formerly described—which might be substituted in the place of our common school-collections. The lessons in such a volume should be distinguished for the perspicuity and neatness of their style, although specimens of what is termed elegance and fine writing may be occasionally introduced. The following may serve as a specimen of the manner in which such lessons may be constructed:—

Description of Volcanoes.

Volcanoes are mountains, generally of a large size, from the summits of which issue fire and smoke. On the top of these mountains there is a vast opening called the *Crater*, sometimes two or three miles in circumference, reaching from their summits to an immeasurable depth in the bowels of the earth. From these dreadful openings are frequently thrown up to an immense height, torrents of fire and smoke, clouds of ashes and cinders, and red-hot stones, together with torrents of melted lava, which roll down the declivity of the mountain like an immense flaming river. These alarming appearances are frequently accompanied with thunders, lightnings, darkness, quakings of the earth, and horrid subterraneous sounds, producing the most terrible devastations through all the surrounding country.—Previous to an eruption, the smoke, which is continually ascending from the crater, increases and shoots up to an immense height; forked lightning issues from the ascending column; showers of ashes are thrown to the distance of forty or fifty miles; volleys of red-hot stones are discharged to a great height in the air; the sky appears thick and dark, and the luminaries of heaven disappear. When these alarming phenomena have continued for some time, the *lava*, or stream of melted minerals, begins to make its appearance, either boiling over the top, or forcing its way through the side of the mountain. This fiery deluge runs down the declivity of the mountain, forming a dismal flaming stream, sometimes 14 miles long, 6 miles broad, and 200 feet deep. In its course it destroys orchards, vineyards, corn-fields, and villages; and sometimes cities, containing 20,000 inhabitants, have been consumed and buried under the burning lava.—There are reckoned about fourteen of these volcanoes in Europe; of which the principal are, Mount Hecla in Iceland, Mount Vesuvius, near the city of Naples, Mount Etna in Sicily, and Stromboli in one of the Lipari islands. Etna and Vesuvius are often quiet for many months, and even years, without the appearance of fire, though the smoke is always ascending from their craters; but the mountain Stromboli is ever at work, and appears to be the only volcano that burns without ceasing; and for ages past, it has been looked upon as the great *lighthouse* of the surrounding seas. Several phenomena of awful sublimity and terrific grandeur frequently accompany the eruptions of these volcanoes. Hecla in Iceland, is a mountain nearly a mile in perpendicular elevation, and a considerable portion of it is covered with snow. In an eruption of this volcano in 1755, a stone weighing 290 pounds was thrown to the distance of 24 English miles. Not far from this mountain, in the year 1783, there happened a most dreadful and appalling eruption, which was preceded by a violent earthquake, which lasted for a fortnight: after which the lava broke out from the earth, in three different places, forming three dreadful *Fire Spouts.* These fire-spouts, or streams of burning lava, after having risen a considerable height into the air, united into one, arriving at last at such an amazing altitude, as to be seen at the distance of more than 200 miles. The height to which this fiery stream ascended was reckoned to be not less than two miles above the surface of the earth. This fire first



Interior of the Crater of Vesuvius.

Vesuvius and Naples.

became visible on the 8th of June, and continued to produce devastation and terror till the 16th of August following. In one direction, it formed a lake of fire spreading out itself in length and breadth more than 36 miles; and, having converted all this track of land into a sea of fire, it stretched itself out in another direction, and rushed down the channel of a large river with violent impetuosity, tearing up the earth, and carrying on its surface flaming woods, and every thing it met with in its course, and forming other lakes of fire. The whole extent of ground covered by this fiery inundation, was no less than 90 miles long, by 42 in breadth, or 3780 square miles, the depth of the lava being from 96 to 120 feet. All the time of this great eruption, the whole atmosphere was loaded with smoke, steam, ashes, and sulphureous vapours. The sun was frequently invisible, or, when seen, was of a dismal reddish colour; and the rain which fell through the smoke and steam was so impregnated with salt and sulphureous matter, that the hair and even the skin of the cattle were destroyed, and the grass of the fields rendered poisonous. Twelve rivers were dried up by this fiery inundation, many lakes were filled up, 20 villages were destroyed, many thousands of sheep and cattle perished, and more than 240 human beings were destroyed. After this eruption, two islands were thrown up from the bottom of the sea, 100 miles south-west from Iceland—one of them three miles in circumference, and about a mile in height, which continued for some time to burn with great violence.

In an eruption of Vesuvius in 1769, about midnight, a fountain of fire was shot up to an amazing height, casting so bright a light, that the smallest objects were clearly distinguishable at any place within six or seven miles of the mountain. On the next day a most violent report was heard, which shook the houses of the town of Portici to such a degree, that the windows were broken and the walls rent by the concussion of the air; and, in an instant, a fountain of liquid transparent fire began to rise, and, gradually increasing, arrived at length at the amazing height of 10,000 feet and upwards, when its blaze was reflected with awful grandeur from the sea. A gentleman, at Sorrento, twelve miles distant from Vesuvius, read the title-page of a book by that volcanic light.—Mount Etna is the largest volcano in Europe. It is above 2 miles in perpendicular height; it is about 30 miles in a straight line along its declivity to the top, its circumference at its base is above 120 miles, and its crater above 3 miles in circumference. In 1669, burning rocks, 15 feet long, and 50 in circumference, were thrown to the distance of a mile, and showers of cinders and ashes to the distance of more than 60 miles. A fiery stream burst from the mountain, 14 miles long and 6 miles broad, which destroyed in its course the habitations of nearly 30,000 persons; and, meeting with a lake four miles in compass, not only filled it up, but made a mountain in its place. The quantity of materials thrown out by volcanoes is prodigious. It was calculated that, in this eruption, the matter thrown out amounted to 150,000,000 cubical yards; so that, had it been extended in length upon the surface of the earth, it would have reached nearly four times round the circumference of the globe. The *noise* emitted by volcanoes has been compared to a mixed sound made up of the raging of a tempest, the murmur of a troubled sea, and the roaring of thunder and artillery, confused altogether. The roarings of Cotopaxi in South America, one of the largest volcanoes in the world, have been heard at the distance of more than 200 miles. Volcanoes are found in every quarter of the world. Forty have been observed constantly burning between Cotopaxi and the Pacific ocean; 20 have been seen in the chain of mountains that stretches along Kamtschatka; and many of them are to be found in the Philippines, the Moluccas, the Cape de Verd, the Sandwich, the Ladrone, and other islands in the Pacific ocean. About 205 volcanoes are known to exist, of which 107 are in islands, and 98 on the great continents. All these grand and terrific phenomena of nature are under the direction and control of the Creator of the universe; and they afford presumptive proofs that man has fallen from his original rectitude, and is no longer in a state of innocence.

Questions on the preceding Lesson.

(1.) What is the nature of a volcano? What part of a volcano is its *crater?* What substances are thrown out from volcanoes? What appearances generally accompany their eruptions? Wha are the signs or forerunners of an eruption? What is meant by *lava?* What appearances does it present, and what effects does it produce? Which are the principal volcanoes in Europe? Wha is peculiar with respect to Stromboli? Describe the size and situation of Hecla. What preceded the eruption in Iceland in 1783? What extraordinary appearance did this eruption exhibit? Of what did the fire-spouts consist? at what distance were they seen? and to what height did they rise? How long did they continue to burn? How large a track of country was covered by the burning materials? and what devastations did they produce? What was the depth of the burning stream? What was the appearance of the sun during this eruption? What effects were produced by the rain, and what was the state of the atmosphere?—What striking appearance was beheld during an eruption of Vesuvius? At what time of the day or night was i seen? What happened before another awful appearance? Describe the size of Mount Etna, and state the circumference of its crater. What were the circumstances attending its eruption in 1669, and what effects did they produce?—(2.) What numbe of volcanoes has been ascertained? In what countries are they found? How many are in Europe? How many in the moun tains of Kamtschatka? What size of stones have been thrown out of Etna and Hecla, and to what distance were they thrown? How many villages were destroyed by the eruption in Iceland? What effect did it produce on the lakes and rivers? and upon animated beings? Were any men and women destroyed? What were the length and breadth of one of the lakes of fire formed by this eruption? Describe the dimensions of the fiery stream which ran down Mount Etna in 1669. To what has the noise of volcanoes been compared? What effect did this noise produce in the town of Portici? At what distance was a gentleman enabled to read by the flame of a volcano? What was reckoned the height of the stream of fire which ascended from Vesuvius? How many habitations were destroyed by the eruption of Etna? and what effect did it produce on a lake? Have any volcanoes ever risen from the bottom of the sea? From what part of a volcanic mountain does the eruption of lava proceed? and does it always issue from the same part? What was the size of one of the islands thrown up from the sea near Iceland? To what distance have sand and ashes been thrown in the eruptions of volcanoes? What is generally the appearance of the sky, and of the luminaries of heaven, previous to an eruption, and during its continuance? At what distance have the sounds of the volcano Cotopaxi been heard?—What is the meaning of the word *subterraneous?* whence is it derived, and of what words is it compounded? Describe, likewise, the meaning of the words *phenomena, summit, devastation, inundation, lava*, &c. Point, on the map of Europe, to the situations of Hecla, Vesuvius, Stromboli, and Etna. Point, on the map of the World, to the situations of the other volcanoes mentioned in the lesson. How many volcanoes are situated in islands? What length of a journey is requisite in ascending to the top of Etna? Under whose superintendence are the operations of volcanoes? and what moral instructions may we learn from their terrific and destructive effects?

The above lesson is compiled from five or six different sources, so as to condense as many interesting facts as possible in one description. The language of the original authors has been altered and simplified, and some original sentences interwoven. It is seldom that a mere *extract* will be found, in all its parts, sufficiently perspicuous and interesting to the young; and therefore it would require a considerable degree of labour and research to arrange and compile a volume or two on the plan proposed. The *questions* are intended to excite the attention and judgment of the pupil, and the answers are understood to be prepared by him, previous to his reading the lesson along with his class. At the same time, the teacher has it in his power to put to his pupils as many subordinate questions connected with the subject as he may deem expedient, and to illustrate, by familiar descriptions, any objects either directly or indirectly connected with the facts stated in the lesson. —The first twenty-six questions are stated nearly in *the order of the lesson;* the remaining queries, beginning at No. 2, are intentionally arranged in a different order, to exercise the judgment of the pupil, and to prevent him getting his answers by rote. This arrangement would require to be adopted in almost every lesson. Each lesson should contain a perspicuous description of some well-defined scene or object, the knowledge of which would form a portion of the foundations of useful science. And, were all the ideas comprised in a lesson of this description to be impressed upon the mind of the pupil *every day*, it cannot be doubted, that in the course of a year, when above three hundred such lessons would be studied, a very considerable portion of useful information would be communicated—far superior in utility and extent to all that has hitherto been acquired by the perusal of Epilogues of stage-players, Speeches in the Roman Senate, Parliamentary debates, the encounters of knights and warriors, essays on criticism and oratory, and all the other prosing dissertations with which so many of our school-collections are occupied.

Besides the questions referring to the descriptions ntained in the lessons, a variety of *miscellaneous* *estions,* in reference to the common appearances of ture, and the different branches of popular science, ight occasionally be proposed to the pupils to excite eir curiosity, and exercise their reasoning powers. or example—

How many miles should we require to travel before we could quite round the world? What proofs can you give that the rth is round like a globe? Is there more land or water on the rface of the earth? What is meant by the atmosphere? Has e air any weight? By what experiments can you prove that e air presses upon our bodies, and upon all parts of the earth? ow do you prove that air exists, since it cannot be seen? What the appearance of the sky during a thunder-storm? Whether the lightning seen before or after a peal of thunder? By what eans could you measure the distance between the earth and a under-cloud? What effects does lightning sometimes produce? -How many senses has man? Which is the organ of vision? hat part of the eye lets in the light? Is the opening which ts in the light always of the same size? What knowledge do e derive by means of the sense of seeing? Have all animals e same number of eyes? What is peculiar in the eyes of flies d other insects?—What are some of the different kinds of ani-als that live in the air, the waters, and the earth? What is the fference between a beast, a bird, and a fish? between a reptile d an insect? &c. Is a lobster a beast, a reptile, or a fish? hat are the different parts of a plant? What part of a plant the stem or trunk? What enables plants to stand upright, lthough they are tossed with the wind? Do all plants grow up-ght? What plants are useful for food? for building? for cloth-g? &c. What parts of our clothing are made from plants? ould we have clothing from animals, if no plants existed? hat would be the appearance of fields and mountains if there ere no plants?—What are the tides? How often do they ebb nd flow in the course of a day? At what periods of the moon re the tides highest? Does the sun appear round? Does the oon always appear round? What other phases or shapes does he assume? At what period of the day or night does the moon ise when she appears with a round full face? In what direction oes she appear after sunset, when she assumes the form of a lender crescent?—If you take a wine-glass, fill it with water, nd press a piece of paper upon the mouth of it, and then turn t upside down, will the water run out of the glass? If you take glass tube and fill it with water, and press your thumb hard pon the top of it, what is the reason that the water will not run out at the bottom of the tube, although it is open? When a boy's sucker is moistened with water, and pressed upon a smooth stone, what is the reason why it is able to lift up a stone of a pretty large size? Would the sucker produce the effect if it were not moistened with water?

Many thousands of queries of this description might be proposed to the young, which, if judiciously selected, explained, and illustrated, could not fail of gratifying their curiosity, and of imparting the elements of useful knowledge, and, above all, of exciting a spirit of observation, of fixing the attention, and of promoting a habit of reasoning on the various objects and operations they perceive around them. An hour or more, during two or three days in the week, might be profitably spent in such exercises, which should always be accompanied with familiar and minute explanations, and, where the subject admits of it, with amusing and illustrative experiments.*

Another occasional exercise might consist in exhibiting to a class a variety of objects, both natural and artificial,—such as, the model of a ship, a pair of bellows, a mineral substance, a shrub, a flower, a leaf, a bird, an insect, or any other object—and causing the pupils to describe the parts or qualities of the object exhibited, and the characteristics by which it is distinguished from every other class of objects. If it be a *ship*, the masts, the yard-arms, the bow, the poop, the keel, the different kinds of sails, &c. their uses, properties, and the terms by which they are distinguished, may be pointed out and described.

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* A considerable variety of such questions as those to which I allude, will be found in an excellent little work, by Mr. Jacob Abbot, Principal of the Mount Vernon School, entitled, "The Little Philosopher."

—If it be a *flower*, the calyx, corolla, stamina and pistil, may be pointed out, the class to which it belongs described, and the characteristics by which it may be known from every other flower distinguished. After having several times exhibited and described such objects, they may afterwards be held up to the view of a class, or handed round among the pupils for their inspection, and each of them, or at least a few of the more intelligent, interrogated respecting the parts, qualities, uses, or circumstances connected with the object exhibited. The objects which may be thus described are almost innumerable; and hence the necessity, in such a system of instruction, of collecting for every school an extensive museum of natural and artificial objects,—of having an extensive plot of ground connected with the seminary, for rearing trees, shrubs, and flowers of different kinds—and of enjoying an extensive prospect from the roof of the building, with the view of descrying as many objects as possible, for the purpose of elucidation and instruction.—The following example, taken from the "Lessons on Objects," as given in a Pestalozzian school at Cheam, will partly illustrate the plan here suggested:—

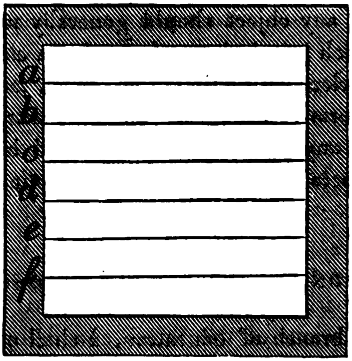
Lesson on Glass.—The pupils are supposed to be arranged before a black board, upon which the result of their observations is written. The glass is passed round the party to be examined by each individual, so that his attention and powers may be exercised about it.

" *Teacher.* What is that which I hold in my hand? *Children.* A piece of glass. *T.* Can you spell the word 'glass?' [The teacher then writes the word 'glass' upon the slate, which is thus presented to the whole class as the subject of the lesson.] You have all examined the glass, what do you observe? what can you say that it is? *C.* It is bright. [The teacher, having written the word 'qualities,' writes under it, 'It is bright.'] *T.* Take it in your hand and feel it. *C.* It is cold. [Written on the board under the former quality.] *T.* Feel it again, and compare it with the piece of spunge that is tied to your slate, and then tell me what you perceive in the glass. *C.* It is smooth, it is hard. *T.* Is there any other glass in the room? *C.* Yes, the windows. *T.* Close the shutters: can you see the garden now? *C.* No. *T.* Why cannot you? *C.* We cannot see through the shutters. *T.* What can you say, then, of the glass? *C.* We can see through it. *T.* Can you tell me any word that will express this quality? *C.* No. *T.* I will tell you then; pay attention that you may recollect it. It is *transparent.* What shall you now understand, when I tell you that a substance is transparent? *C.* We can see through it. *T.* You are right; try and recollect something that is transparent. *C.* Water. *T.* If I were to let this glass fall, or you were to throw a ball at the window, what would be the consequence? *C.* The glass would be broken. It is brittle. *T.* Could I in the same manner break the shutters? *C.* No. *T.* Could I break it if I used great force? *C.* Yes. *T.* Would you therefore call the wood brittle? *C.* No. *T.* What substances then do you call brittle? *C.* Those which are easily broken."

These are probably as many qualities as would occur to children at their first attempt, which, being arranged on the slate or board, form an exercise in spelling. They should then be effaced, and if the pupils are able to write, they may endeavour to remember the lesson, and put it down on their slates. Various other qualities of glass might afterwards be described to the pupils, particularly its power of forming images and magnifying objects, when ground into convex lenses, and combined in telescopes and microscopes, which unfold to our view the wonders of the heavens, and the minute parts of creation. The chief business of a teacher, in such exercises, is, to draw out the ideas of children, to direct them in a right channel, to teach them to fix their attention on what is immediately before them, and to employ their reasoning powers in drawing the proper conclusions from the objects they contemplate. Contrary to the almost universally prevailing practice, the *idea* of any object should generally precede the *term* by which it is designated; so that a child having acquired a clear conception of an object, may feel the want of a term or terms by which its nature or qualities may at any time be expressed, and be enabled, on every occasion, to associate the one with the other.

SECTION II.—*Writing and Composition.*

On this branch of education, I shall offer only a few general remarks, in addition to those formerly stated.—Writing is an art of the greatest utility and importance, and to which children should be accustomed at an early period of their lives. In the first instance, they may be taught to write on a slate, with a slate-pencil, which they may be taught to hold in the same way as we hold a goose-quill or a steel-pen. Instead of beginning with straight lines and *parts* of letters, they might at once begin either with complete letters or short words, which should seldom be made of a larger size than half text, as in the actual business of life there is seldom occasion for writing a large text-hand. Mr. Buchanan (a gentleman who has been long a successful teacher in Greenock, and the author of several useful publications) lately showed me a plan he had recently introduced to facilitate the forming of letters, when a child is first set to write on a slate. The method is as follows:—Slates are prepared, as in the following figure, with the letters *a*, *b*, *c*, &c. *indented* on the left hand side. The pupil works his pointed slate-pencil several times throughout the indentings of each letter, and, after he has become familiar with its slopes and curves, and acquires the movements requisite to form the letter, he tries to write a number of the same letters in succession, on the line drawn on the slate immediately opposite. Mr. Buchanan has found this plan greatly to facilitate the accurate formation of the letters, in the first attempts of children to write on slates; and it certainly deserves a fair trial in other seminaries. Short words might be indented in the same manner; and when the pupil is at a loss as to the formation and the joinings of the different letters, he may recur to the indented model, and by following with his pencil its turnings and windings, three or four times in succession, he will soon be enabled to form the word on his slate.



On a principle somewhat similar, a child may be taught to write with ink upon paper, by setting before him a piece of good writing made with a red pencil, and making him pass and repass over all the strokes and curves with a pen full of black ink.—In Professor Jacotot's system of education—instead of commencing with elementary lines, curves, and letters, in what is called text-hand—a complete sentence, written by the master, or engraved in *small hand*, is put before the eyes of the pupil, which he is directed to copy. He writes, as well as he can, the first word—suppose '*The*;' and no further progress must be made, till, by an attentive comparison of his own performance with the original copy, he becomes conscious of the faults and defects of the former. Such questions as these are then put. *Q.* Is this *T* well made? *A.* No; it is too high, or too short, or too long. *Q.* Could it be made better? *A.* I think so. *Q.* What must you then do to improve it? *A.* Make it longer, or broader, or shorter, &c. *Q.* How could you have made it better at first? *A.* By paying more attention, &c.—But I leave it to the writing-master to adopt such plans for teaching the formation of written characters as his experience may deem most expedient, and conclude with two or three general remarks.

The principal object of writing is to communicate our sentiments to others, or to record the fleeting thoughts that pass through our own minds for the subject of future consideration. The art of writing should therefore be made to bear, as soon as possible, on the practical purposes of life. Instead of continuing children, for years, at the formal practice of writing from 'copy-lines'—as soon as they acquire a tolerable hand—they should be accustomed to write forms of mercantile accounts—statements of arithmetical operations—cards of invitation—letters of friendship or business—forms of address and superscriptions—and whatever else they may afterwards have occasion to practise in the actual business of life. The miscellaneous sentiments embodied in the lines and pieces which they copy, should uniformly contain religious and moral precepts and sentiments easily understood, and statements of historical, geographical, astronomical, and scientific facts, in order that no opportunity may be lost in familiarizing the mind to useful knowledge. For example, instead of the unmeaning words generally given as 'copies,' such sentences as the following might be substituted:—

"The eyes of the Lord are in every place, beholding the evil and the good. He knoweth our downsitting and our uprising, and understandeth all our thoughts. The darkness cannot hide from him; for the darkness and the light are both alike to God." "The power and wisdom of God are seen in the construction of the smallest insect. In a single drop of certain kinds of water, hundreds of little animals may be seen, by the microscope, swimming like fishes in a pond, every one of them having eyes, a mouth, stomach, bowels, and instruments of motion." "About sixteen hundred years after the Creation, the whole earth was covered with a flood of water, which reached more than twenty feet above the tops of the highest mountains." "Fear God, and keep his commandments. Love your enemies, do good to them that hate you, and live peaceably with all men. If thine enemy hunger, feed him; if he thirst, give him drink. For God is long-suffering and kind, even to the unthankful and the evil; He causeth his sun to arise on the evil and on the good, and sendeth his rain to water the fields both of the righteous and of the wicked." "The world in which we dwell is round, like a globe or ball; and it would require a journey of nearly twenty-five thousand miles before we could go quite round it." "The Atlantic ocean lies between Europe and America, and it is three thousand miles broad." "Africa is a very hot country, and there are great numbers of people living in it whose skin is entirely black." "China is the most populous empire in the world: it contains about three hundred millions of inhabitants. The whole world contains above eight hundred millions." "The moon is two thousand one hundred and sixty miles in diameter; and is two hundred and forty thousand miles distant from the earth." "The sun is ninety-five millions of miles distant; and is more than twelve hundred thousand times larger than the whole earth." "The air, or atmosphere, presses upon every square yard of the earth's surface with a force equal to more than nineteen thousand pounds." "The river Amazons is three thousand miles long, and is the largest river on the globe," &c.

A sentence or two of this description might be given to a whole class of writers, to be copied several times over; and after the class has finished the writing, the fact or sentiment contained in the sentence might be explained and illustrated. By this means, a number of useful facts and practical rules of conduct might be gradually communicated to the youthful mind; and, being noted down in the pupil's copy-book, they might be re-perused and referred to on any future occasion. Perhaps it might not be inexpedient to classify a number of fundamental truths, facts, and aphorisms, under such heads as the following—*Religious*, *Moral*, *Geographical*, *Historical*, *Astronomical*, *Chemical*, *Optical*, *Botanical*, &c. allotting two or three pages of the copy-book for each department. The above suggestion proceeds on the principle, that *in every department of study, an opportunity should be taken of imparting some new and useful truth to the understanding of the young, or impressing some moral lesson upon the heart.*

As soon as the pupil is able to handle the pen with some degree of dexterity, he should be accustomed to write forms of letters, narratives, essays, or real epistolary correspondence. He may likewise, at this period, be gradually taught the *art of composition.* This may be effected, in the first instance, by recounting to him a striking narrative or an interesting historical fact, and desiring him immediately to repeat it in his own style, and afterwards to write it down nearly in the same manner. After being accustomed to write, a few simple narratives, descriptions of some objects connected with natural history, or some striking moral sentiments, may be read over several times in his hearing, as exercises in composition. He may next be requested to give a narrative of any excursion he has made, either alone or in company, and a description of the scenes he has visited, the events that occurred, and the friends by whom he was entertained. He may also be desired to describe the rural scenery around him, and the streets, lanes, public buildings, and other remarkable objects connected with the town or village in which he resides. A stuffed bird or quadruped, an insect, a plant, flower, or any other object, might occasionally be presented to him, with a request to describe in writing, its form, parts, proportions, and properties, as they appear to his senses after a minute inspection. The apparent motion of the sun during summer might be prescribed as an exercise of this kind, in which he might be desired to describe the direction or position of the sun at 6 and 9 o'clock in the morning, at noon, and at 3, 6, and 8 o'clock in the afternoon. A description of the different phases of the moon, and of the positions in the heavens in which she appears, immediately after sunset, when she assumes the figure of a crescent, a half-moon, a gibbous phase, and a full enlightened hemisphere—might form another exercise.* Such exercises would tend to excite a spirit of observation, and to impress the mind with various facts, which would be found of immense benefit to the pupil when he should afterwards enter on the regular study of the sciences. When such exercises are prescribed to a whole class, a day and hour may be appointed, when a few of the compositions might be read by the teacher in the presence of the class. This will give him an opportunity of offering remarks on the merits of the different compositions, and of showing how the same ideas may be expressed in different language. On such occasions, orthographical and grammatical errors may be pointed out, and directions given how they may be avoided. At the same time, instructions may be given in reference to the proper use of capital letters, stops and marks, and the proper arrangement of any piece of composition into sentences and paragraphs.

The utility of such exercises will scarcely be called in question. They would habituate the young to *observation* and *reflection*—instead of looking at the objects and phenomena of nature with an *unconscious*

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* In order to understand the object of such an exercise, it may not be improper to state, that immediately after sunset, the moon, when in a *crescent* phase, appears near the *west* or *south-west* quarter of the heavens, in our northern latitude—when of the figure of a *half-moon*, she appears nearly in the *south* at the same hour—when of a *gibbous* phase, about the *south-east*—and when a *full moon*, in the *east*, nearly opposite to the point of sunset, and sometimes a little to the south-east or north-east, according as she is in north or south declination. These circumstances can be easily ascertained in the course of a fortnight, and it is of some importance to a young person that he be enabled to determine them from his own observations.

gaze, they would learn to inspect them with minute attention, and investigate their forms, qualities, and effects. In such observations they would feel a variety of pleasing emotions; for the acquisition of new facts and ideas, and knowledge of every description, is a source of enjoyment to every mind, whether young or old. Besides, such studies and employments would have a tendency to prevent them from engaging in frivolous pursuits and mischievous devices; and, in the future periods of their lives, they would be enabled to record and describe, with perspicuity, any remarkable occurrences or facts that may fall under their observation. We have reason to believe that many interesting facts in relation to geology, mineralogy, zoology, meteorology, and other departments of natural history, have been detected by persons in the lower ranks of life, which have been lost to the scientific world, in consequence of their being beheld with an incurious eye, and from the observers having been incapable of writing an intelligent description of the objects which came under their inspection. Hence the numerous bones of fossil animals which have been mangled and destroyed, and thrown aside as rubbish, by labourers and miners, had they been preserved entire, might have thrown a new light on the extinct species of the animal kingdom, and on the former state of the world. But in the present state of society, there is not one out of a hundred capable of writing a perspicuous description of any fact, physical, political, or moral, that may fall under his observation. If, therefore, young people were early excited to habits of observation, and to record in writing the results of their observations, they might afterwards, in a variety of ways, be eminently useful in contributing to the advancement of science and of general knowledge.

SECTION III.—*Drawing.*

In connection with writing, Drawing is an accomplishment in which every young person should be initiated. As writing consists in the imitation of characters and words, so drawing is the imitation or writing down of objects. Almost every child feels a desire to imitate the actions of others, and, when he has it in his power, to draw representations, however rude, of the objects around him; and in such exercises feels no small share of enjoyment.—He may be taught to begin with geometrical figures, as lines, angles, squares, parallelograms, triangles, polygons, arches, circles, ovals, cones, pyramids, cylinders, and the like, as being the foundation of all other proportions. He may next proceed to the drawing of fruits, as apples, pears, cherries, &c. with their leaves; of flowers, as roses, tulips, and daisies; of birds, beasts, fishes, and serpents; of the human body, with its several lineaments; and of houses, spires, public buildings, and landscapes. After he has executed some of these objects from patterns set before him, he should be encouraged as soon as possible *to copy from nature.* For this purpose, he might be directed to begin with attempting to draw the representation of an adjacent building, of the schoolhouse, with its garden and area, of a church, a spire, a tower, or some adjacent public edifice—also the imitation of a tree, a flower, a horse, a cow, a dog, a ship, or a windmill. After drawing several landscapes from copies, he may be requested to delineate a particular landscape in the neighbourhood of the seminary; and if such an exercise were prescribed to a whole class, premiums (if such a principle be admitted) might be offered for two or three of the best finished drawings. Previous, however, to such attempts, some of the principles of perspective would require to be familiarly illustrated. The pupil might next be instructed in the delineation of maps, the drawing of architectural plans, garden plots, and rural ornaments, machinery of different kinds, and optical, mathematical, and philosophical instruments. In the present state of society, and amidst the improvements now going on in all kinds of machinery, a particular acquaintance with this department of drawing would be found of great practical utility, and there are few mechanical exercises in which the young would take greater delight.

Drawing has hitherto been considered chiefly in the light of an *ornamental* study, and has been viewed as principally adapted to the amusement of ladies, and the higher ranks of society; and their attention has been chiefly directed to the copying of paintings, engravings, drawings, and *fancy-pieces*, which have no prototypes in nature. Hence there are comparatively few who have learned this art in the usual routine, that can accurately delineate a landscape from nature, draw an architectural plan, or give a correct representation of any instrument or piece of machinery. The art of drawing ought not to be considered as merely an elegant amusement: it is capable of being rendered of the greatest utility to science, and to those arts which minister to the comfort and rational enjoyments of human life. Were useful knowledge more generally diffused, and were the young universally taught to draw from nature, our views of the landscape of the world, of the facts of science, and of the operations of art, might be indefinitely enlarged. Every traveller would be enabled to take a sketch of the wonders of nature, the varieties of art, the domestic associations, and the more interesting scenery displayed in the different regions through which he passed; and such sketches, being afterwards expanded into panoramas, or engraved for the optical machine, might extend our conceptions of the scenery of the world, and convey clear and distinct views of objects which we may never have an opportunity of visiting. Every naturalist would be qualified to delineate an exact representation of any unknown tree, flower, shrub, or uncommon animal, that might fall under his observation. Every one engaged in astronomical observations could represent to others, with accuracy, the phenomena of the solar spots, with their numberless variations—the aspect of the lunar mountains, peaks, and vales, in every phase of the moon, and the changes which may occasionally be taking place—the varied appearances on the surfaces of the planets, as seen through telescopes—and the relative positions, sizes and phenomena of the stellar and planetary nebulæ dispersed through the distant regions of space. Every artisan and mechanic would be qualified for sketching any mechanical improvement or invention, either of his own or of others; and every labourer, for delineating whatever curious or uncommon objects he might meet with, either in his rural walks, or in his digging, mining, and agricultural operations.

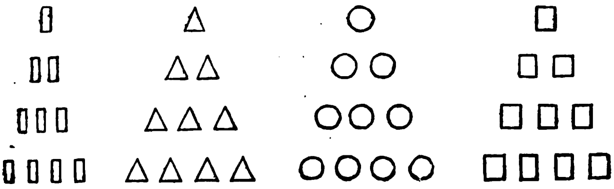
But, in order to enjoy the advantages which would be derived from universal instruction in the art of drawing, every object which the young are set to copy should be one which has *a real existence in nature*, and which may be instrumental in conveying to their minds a new and correct idea of objects which they may not previously have seen, and thus of adding something to their stock of general knowledge; and they should be given to understand, that the object of drawing is not mere amusement, but practical utility; and consequently they should be induced to copy from nature and art as soon as they are able to handle the pencil with any degree of dexterity. It appears truly absurd and preposterous to set before children, as patterns of imitation, fancy pictures and imaginary landscapes which have no prototypes in the real world, when there are so many real objects and diversified landscapes around us, and when we consider that every new object which has a real existence, presented to a young mind, adds something to its stock of knowledge. Fancy pictures are of as little use in giving us correct representations of nature and art, as novels and romances are in conveying accurate information of the transactions and events recorded in history. On this ground, I would deem it inexpedient to distract the attention of the young with historical paintings or drawings, however much such pieces may be admired. In short, when we consider how much useful information, as well as pleasure, may be conveyed by accurate pictures taken directly from the scenes of nature and the operations of art, we cannot but view it as highly expedient, in attempting the general diffusion of knowledge, that every young person should be taught to delineate, on any emergency, whatever phenomena or processes of nature, or operations of art, may be thought worthy of being depicted and recorded.

SECTION IV.—*Arithmetic.*

Arithmetic is the science which explains the properties and relations of numbers, and the method of computing by them. A knowledge of this subject should form a part of every system of education, as its principles and rules form the groundwork of all the computations connected with commerce, geometry, mensuration, geography, astronomy, navigation, and other departments of science.

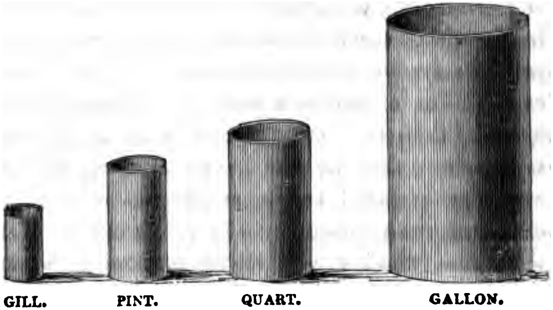
Previous to engaging in the regular study of this science, and attempting its more complex operations, the general properties of numbers should be familiarly illustrated by *sensible representations*, in a manner similar to what is generally practised in infant schools. This may be done either in private by an intelligent parent, or in a public school, as an occasional amusement for those who have not entered on the regular study of arithmetic; which would prepare them for understanding its fundamental rules and computations. A variety of moveable objects, as peas, beans, beads, marbles, cubes, &c. may be provided, —or perhaps small pieces of wood cut in the shape of cubes or parallelopipeds, as they do not roll, may be more convenient for this purpose—and a method such as the following, corresponding to the spirit and plan of Pestalozzi, may be pursued. The teacher, placing one of the cubes before the children, says, "This is *one* cube;" the children at the same time repeat, "This is *one* cube." The teacher, adding another, says, "These are *two* cubes," which the children likewise repeat. This process may be continued till they advance to the number *ten*. Then, taking all the cubes from the table, and throwing down *four*, the question is put, How many cubes are on the table? which the children, after having been for some time familiarized to this mode of notation, will be able to answer. In like manner, other numbers may be successively placed on the table, and similar questions put. This process may be varied as follows: Placing a parallelopiped or oblong figure before the children, the teacher may say, "Once one"—placing another at a little distance from the first, "Twice one"—adding another, "Three times one;" and so on, making the children repeat the numbers as the pieces are laid down. When the ten oblongs are thus arranged at equal distances and in a straight line, such questions as the following may be put. How many oblongs are there on the table? Do they lie close together? Is the first oblong placed nearer to the second than the second is to the third? Do their long sides lie in the direction of the window or of the door, &c.? Could they be placed differently without changing either their number or distance? When these questions are answered, they may then be desired either to shut their eyes or to turn their backs to the table, when three oblongs may be taken away, and the second moved nearer the first, and the question put, How many oblongs are there now? The children, having counted them, will say, "There are *seven*." How many were there before? "Ten." How many have I taken away? "Three." Did these oblongs undergo any other change? "You have moved *that* (pointing to it) nearer to the other." In order to vary these processes as much as possible, the children should be desired to count the number of fingers on one or both hands, the number of buttons on their jackets or waistcoats, the number of chairs or forms in the room, the number of books placed on a table or book-shelf, or any other object that may be near or around them. By such exercises, the idea of number and the relative positions of objects would soon be indelibly impressed on their minds, and their attention fixed on the subject of instruction.

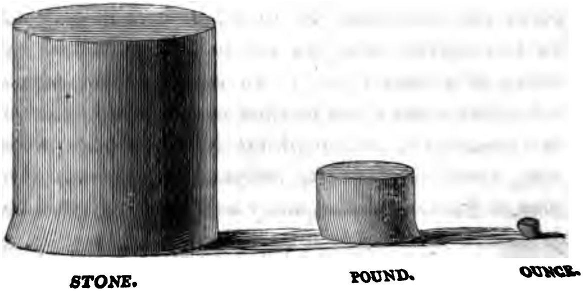
These exercises may be still farther varied, by drawing, on a large slate or board with chalk, lines, triangles, squares, circles, or other figures, as under.



Having chalked such figures as the above, the children may be taught to say, "One line, one triangle, one circle, one square—two lines, two triangles, two circles, *two squares—three* lines, three triangles, *three circles, three squares,*" &c. which may be continued to twelve or twenty, or any other moderate number. They may be likewise taught to repeat the numbers either backwards or forwards, thus: "One triangle, two triangles, three triangles, four triangles"—"Four circles, three circles, two circles, one circle." The nature of the four fundamental rules of arithmetic may be explained in a similar manner. Drawing five squares or lines on the board, and afterwards adding three, it would be seen that the sum of 5 and 3 is *eight*. Drawing twelve circles, and then rubbing out or crossing three of them, it will be seen that if 3 be taken from 12, *nine* will remain. In like manner the operations of multiplication and division might be illustrated. But it would be needless to dwell on such processes, as every intelligent parent and teacher can vary them to an indefinite extent, and render them subservient both to the amusement and the instruction of the young. From the want of such sensible representations of number, many young people have been left to the utmost confusion of thought in their first arithmetical processes, and even many expert calculators have remained through life ignorant of the *rationale* of the operations they were in the habit of performing.

When the arithmetical pupil proceeds to the *compound* rules, as they are termed, care should be taken to convey to his mind a well-defined idea of the relative value of *money*—the different measures of *length*, and their proportion to one another—the relative bulks or sizes of the *measures* of *solidity* and *capacity*—angular measures, or the *divisions of the circle*—*square measure*—and the measure of time. The e of money may be easily represented, by placing penny pieces or twelve halfpennies in a row, and ing a sixpence opposite to them as the value in er; by laying five shillings in a similar row, with rown piece opposite; and twenty shillings, or r crowns, with a sovereign opposite as the value gold; and so on, with regard to other species money. To convey a clear idea of measures of gth, in every school there should be accurate mo- or standards of an *inch*, a *foot*, a *yard*, and a . The relative proportions which these measures r to each other should be familiarly illustrated, certain objects fixed upon, either in the school or adjacent premises, such as the length of a table, breadth of a walk, the extent of a bed of flowers, by which the lengths and proportions of such sures may be indelibly imprinted on the mind. e number of yards or poles in a furlong or in a , and the exact extent of such lineal dimensions, be ascertained by actual measurement, and then s may be fixed at the extremities of the dis- e, to serve as a standard of such measures. The sures of surface may be represented by square rds, an inch, a foot, and a yard square. The ent of a *perch* or *rod* may be shown by marking a of that dimension in the school area or garden; the superficies of an acre may be exhibited by ing off a square plot in an adjacent field, which ll contain the exact number of yards or links in dimension, and marking its boundaries with s, trenches, furrows, hedges, or other contriv- s. *Measures of capacity* and solidity should be *sented by models* or standard measures. The gill, the pint, the quart, and the gallon, the peck and the bushel, should form a part of the furniture of every school, in order that their relative dimensions may be clearly perceived. The idea of a *solid foot* may be represented by a box made exactly of that dimension; and the *weights* used in commerce may be exhibited both to the eye and the sense of feeling, by having an *ounce*, a *pound*, a *stone*, and a *hundred-weight*, made of cast-iron, presented to view in their relative sizes, and by causing the pupil occasionally to lift them, and feel their relative weights. Where these weights and measures cannot be conveniently obtained, a general idea of their relative size may be imparted by means of figures, as under.



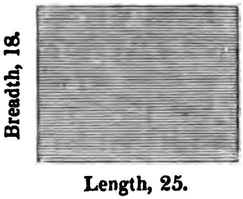


Angular measure, or the divisions of the circle, might be represented by means of a very large circle, divided into degrees and minutes, formed on a thin deal board or pasteboard; and two indexes might be made to revolve on its centre, for the purpose of exhibiting angles of different degrees of magnitude, and showing what is meant by the *measurement* of an angle by degrees and minutes. It might also be divided into twelve parts, to mark the signs or great divisions of the zodiac. From the want of exhibitions of this kind, and the necessary explanations, young persons generally entertain very confused conceptions on such subjects, and have no distinct ideas of the difference between minutes of *time* and minutes of *space*. In attempting to convey an idea of the relative proportions of *duration*, we should begin by presenting a specific illustration of the *unit of time*, namely, the duration of a *second*. This may be done by causing a pendulum of 39⅐ inches in length to vibrate, and desiring the pupils to mark the time which intervenes between its passing from one side of the curve to the other, or by reminding them that the time in which we deliberately pronounce the word *twenty-one* nearly corresponds to a second. The duration of a *minute* may be shown by causing the pendulum to vibrate 60 times, or by counting deliberately from *twenty* to *eighty*. The hours, half hours, and quarters, may be illustrated by means of a common clock; and the pupils might occasionally be required to note the interval that elapses during the performance of any scholastic exercise. The idea of weeks, *months, and* years, might be conveyed *by means of a large circle* or long stripe of pasteboard, which might be made either to run along one side of the school, or to go quite round it. This stripe or circle might be divided into 365 or 366 equal parts, and into 12 great divisions corresponding to the months, and 52 divisions corresponding to the number of weeks in a year. The months might be distinguished by being painted with different colours, and the termination of each week by a black perpendicular line. This apparatus might be rendered of use for familiarizing the young to the regular succession of the months and seasons; and for this purpose they might be requested, at least every week, to point out on the circle the particular month, week, or day, corresponding to the time when such exercises are given.

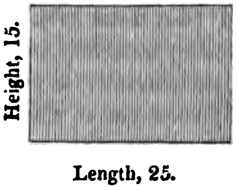
Such minute illustrations may, perhaps, appear to some as almost superfluous. But, in the instruction of the young, it may be laid down as a maxim, that we can never be too minute and specific in our explanations. We generally err on the opposite extreme, in being too vague and general in our instructions, taking for granted that the young have a clearer knowledge of first principles and fundamental facts than what they really possess. I have known schoolboys who had been long accustomed to calculations connected with the compound rules of arithmetic, who could not tell whether a pound, a stone, or a ton, was the heaviest weight—whether a gallon or a hogshead was the largest measure, or whether they were *weights* or measures of *capacity*—whether a square pole or a square acre was the larger dimension, or whether a pole or a furlong was the greater measure of length. Confining their attention merely to the *numbers* contained in their tables of weights and measures, they multiply and divide according to the order of the numbers in these tables, without annexing to them any definite ideas; and hence it happens that they can form no estimate whether an arithmetical operation be nearly right or wrong, till they are told the answer which they ought to bring out. Hence, likewise, it happens that, in the process of reduction, they so frequently *invert* the order of procedure, and treat tons as if they were ounces, and ounces as if they were tons. Such errors and misconceptions would generally be avoided were accurate ideas previously conveyed of the relative values, proportions, and capacities of the money, weights, and measures used in commerce.

Again, in many cases, arithmetical processes might be illustrated by diagrams, figures, and pictorial representations. The following question is stated in "Hamilton's Arithmetic," as an exercise in simple multiplication—"How many square feet in the floor, roof, and walls of a room, 25 feet long, 18 broad, and 15 high?" It is impossible to convey a clear idea to an arithmetical tyro, of the object of such a question, or of the process by which the true result may be obtained, without figures and accompanying explanations. Yet no previous explanation is given in the book, of what is meant by the *square* of any dimension, or of the method by which it may be obtained. Figures, such as the following, should accompany questions of this description.

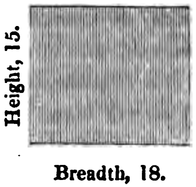
Floor and roof.



Side walls.



End walls.



The idea of superficial measure, and the rea why we multiply two sides of a quadrangular fig in order to obtain the superficial content, may be lustrated as follows. Suppose a square table wh sides are 6 feet long, and another of the form o parallelogram, 9 feet long, and 4 feet broad, superficial feet contained in these dimensions may represented as under—6×6=36, and 9×4=3

6

6

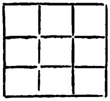
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

9

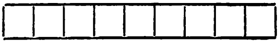
4	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18
	19	20	21	22	23	24	25	26	27
	28	29	30	31	32	33	34	35	36

By such a representation it is at once seen what is meant by a *square foot*, and that the product of the length by the breadth of any dimension, or of the side of a square by itself, must necessarily give the number of square feet, yards, inches, &c. in the surface. It will also show that surfaces of very different shapes, or extent as to length or breadth, may contain the same superficial dimensions. In the same way we may illustrate the truth of such positions as the following:—That there are 144 inches in a square foot—9 square feet in a square yard—160 square poles in an acre—640 square acres in a square mile—27 cubical feet in a cubical yard, &c. For example, the number of square feet in a square yard, or in two square yards, &c. may be represented in either of the following modes.

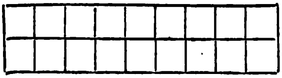
1 *Square Yard.*

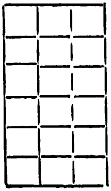


1 *Square Yard.*



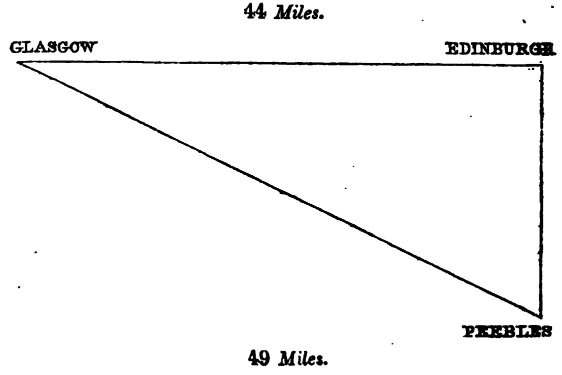
2 *Square Yards.*



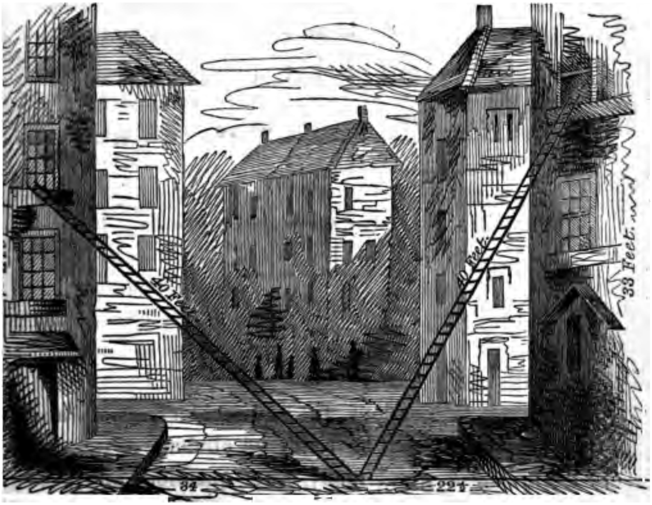


2 *Square Yards.*

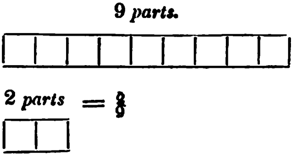
When the dimensions of the mason work of a house are required, the different parts of the building, which require separate calculations, as the side-walls, the end-walls, the gables, the chimney-stalks, &c. should be separately delineated; and if such delineations are not found in the books where the questions are stated, the pupil, before proceeding to his calculations, should be desired to sketch a plan of the several dimensions which require his attention, in order that he may have a clear conception of the operations before him. Such questions as the following should likewise be illustrated by diagrams. "Glasgow is 44 miles west from Edinburgh; Peebles is exactly south from Edinburgh, and 49 miles in a straight line from Glasgow. What is the distance between Edinburgh and Peebles?" This question is taken from "Hamilton's Arithmetic," and is inserted as one of the exercises connected with the extraction of the Square Root; but no figure or explanation is given, excepting the following foot-note: "The square of the hypothenuse of a right-angled triangle, is equal to the sum of the squares of the other two sides." It should be represented as under.

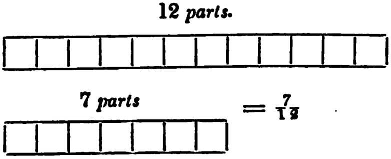


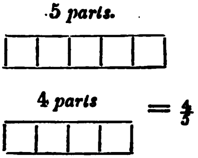
In a similar manner should many other examples connected with the extraction of roots be illustrated. The following question can scarcely be understood or performed, without an illustrative figure, and yet there is no figure given, nor hint suggested on the subject, in the book from which it is taken. "A ladder, 40 feet long, may be so placed as to reach a window 33 feet from the ground on one side of the street; and by only turning it over, without moving the foot out of its place, it will do the same by a window 21 feet high on the other side. Required the breadth of the street?" The following is the representation that should be given, which, with a knowledge of the geometrical proposition mentioned above, will enable an arithmetical tyro to perform the operation, and to perceive the reason of it.



By this figure, the pupil will see that his calculations must have a respect to two right-angled triangles, of which he has two sides of each given to find the other sides, the sum of which will be the breadth of the street. The nature of *fractions* may be illustrated in a similar manner. As fractions are parts of a unit, the denominator of any fraction may be considered as the number of parts into which the unit is supposed to be divided. The following fractions, $\frac{2}{9}$, $\frac{4}{5}$, $\frac{7}{12}$, may therefore be represented by a delineation, as under.







By such delineations, the nature of a fraction, and the *value* of it, may be rendered obvious to the eye of a pupil.—A great many other questions and processes in arithmetic might, in this way, be rendered clear and interesting to the young practitioner in numbers; and where such sensible representations have a tendency to elucidate any process, they ought never to be omitted. In elementary books on arithmetic, such delineations and illustrations should frequently be given; and, where they are omitted, the pupil should be induced to exert his own judgment and imagination, in order to delineate whatever process is susceptible of such tangible representations.

I shall only remark further, on this head, that the questions given as exercises in the several rules of arithmetic, should be all of a *practical* nature, or such as will generally occur in the *actual business* of life—that the suppositions stated in any question should all be consistent with real facts and occurrences—that facts in relation to commerce, geography, astronomy, natural philosophy, statistics, and other sciences, should be selected as exercises in the different rules, so that the pupil, while engaged in numerical calculations, may at the same time be increasing his stock of general knowledge—and that questions of a trivial nature, which are only intended to puzzle and perplex, without having any practical tendency, be altogether discarded. In many of our arithmetical books for the use of schools, questions and exercises, instead of being expressed in clear and definite terms, are frequently stated in such vague and indefinite language, that their object and meaning can scarcely be appreciated by the teacher, and far less by his pupils; and exercises are given which have a tendency only to puzzle and confound the learner, without being capable of being applied to any one useful object or operation. Such que tions as the following may be reckoned among th class. "Suppose £2 and $\frac{3}{8}$ of $\frac{1}{5}$ of a pound sterlin will buy 3 yards and $\frac{2}{5}$ of $\frac{3}{5}$ of a yard of cloth, ho much will $\frac{6}{11}$ of $\frac{3}{4}$ of a yard cost?" "The numb of scholars in a school was 80; there were one-h more in the second form than in the first; the nu ber in the third was $\frac{5}{3}$ of that in the second; and the fourth, $\frac{2}{3}$ of the third. How many were there each form?"

In some late publications, such as "Butle Arithmetical Exercises," and "Chalmers' Introdu tion to Arithmetic," a considerable variety of bi graphical, historical, scientific, and miscellaneous i formation is interspersed and connected with t different questions and exercises. If the facts a processes alluded to in such publications, were som times represented by accurate pictures and delin tions, it would tend to give the young an interest the subject of their calculations, and to convey their minds clear ideas of objects and operation which cannot be so easily imparted by mere ver descriptions; and consequently, would be adding their store of general information. The expense books constructed on this plan, ought to be no obst cle in the way of their publication, when we consid the vast importance of conveying well-defined co ceptions to juvenile minds, and of rendering eve scholastic exercise in which they engage interesti and delightful.

SECTION V.—*Grammar.*

Grammar, considered in its most extensive sense, being a branch of the philosophy of mind, the study of it requires a considerable degree of mental exertion; and is, therefore, in its more abstract and minute details, beyond the comprehension of mere children. Few things are more absurd and preposterous than the practice, so generally prevalent, of attempting to teach grammar to children of five or six years of age, by making them commit to memory ts definitions and technical rules, which to them are nothing else than a collection of unmeaning sounds. In most instances they might as well be employed in repeating the names of the Greek characters, the jingles of the nursery, or a portion of the Turkish Alcoran. The following is the opinion of Lord Kaimes on this point:—"In teaching a language, t is the universal practice to begin with grammar, and to do every thing by rules. I affirm this to be a most preposterous method. Grammar is contrived for men, not for children. Its natural place is between language and logic: it ought to close lectures on the former, and to be the first lectures on the atter. It is a gross deception that a language cannot be taught without rules. A boy who is flogged nto grammar rules, makes a shift to apply them; but he applies them by rote like a parrot. Boys, for he knowledge they acquire of a language, are not ndebted to dry rules, but to practice and observaion. To this day, I never think without shuddering, of Disputer's Grammar, which was my daily persecution during the most important period of my life. Deplorable it is that young creatures should be so punished, without being guilty of any fault, more than sufficient to produce a disgust at learning, instead of promoting it. Whence then this absurdity of persecuting boys with grammar rules?"

In most of our plans of education, instead of smoothing the path to knowledge, we have been careful to throw numerous difficulties and obstacles in the way. Not many years ago, we had two characters for the letter s, one of them so like the letter f, that, in many cases, the difference could not be perceived. We had likewise *compound letters*, such as ct, ſl, ſh, &c. joined together in such an awkward manner, that the young could not distinguish them as the same letters they had previously recognised in their separate state; so that, in addition to the ungracious task of learning the letters of the alphabet in their insulated state, under the terror of the lash, they had to acquire the names and figures of a new set of characters, before they could peruse the simplest lessons in their primers. Such characters, it is to be hoped, are now for ever discarded. We have still, however, an absurd practice in our dictionaries and books of reference, which tends to perplex not only our tyros, but even our advanced students, when turning up such works—I mean the practice of confounding the letters I and J, and the letters U and V, which are as distinct from each other as a vowel is from a consonant; so that all the words beginning with J must be sought for under the letter I, and the words beginning with V, under the letter U, causing to every one a certain degree of trouble and perplexity, when searching for words beginning with any of these letters. Most of our school Dictionaries and Encyclopedias are still arranged on this absurd principle, which should now be universally discarded.

In the construction of our books of Grammar for the use of children,—instead of facilitating this study, we have done every thing to render it as dry and intricate as possible. We have definitions, general rules, exceptions to these rules, declensions and conjugations, profusely scattered throughout every part of these scholastic manuals, and a cart load of syntactical rules and examples, all of which must of course be crammed, like a mass of rubbish, into the memories of the little urchins, although they should not attach a single correct idea to any portion of such scholastic exercises. Nothing can be more simple than the *English verb*, which, unlike the Greek and Latin verb, has only two or three varieties in its termination; yet, we perplex the learner with no less than *six* different *tenses*—the present, the imperfect, the perfect, the pluperfect, the first future, and the future perfect,—while nature and common sense point out only *three* distinctions of *time* in which an action may be performed; namely, the *past*, the *present*, and the *future*, which of course are subject to a few modifications. On the same principle on which we admit six tenses, we might introduce nearly double that number. Hence a celebrated grammarian, Mr. Harris, in a dissertation on this subject, enumerates no fewer than *twelve tenses.* It is quite easy to make a child understand that a man is now striking a piece of iron with a hammer, that he did the same thing yesterday, and will perform the same action to-morrow,—in other words, that an action was performed at some *past* time, is performing *now*, or will be performed at some *future* period; but it is almost impossible to convey to his mind a clear idea of *twelve*, or even of *six*, tenses, although a hundred distinctions and definitions should be crammed into his memory. A disposition to introduce quibbling and useless metaphysical distinctions has been the bane of *theology*, and one of the causes of the divisions of the Christian church. A similar disposition has rendered grammar perplexing and uninteresting to young minds, and prevented them from understanding or appreciating its nature and *general* principles. By attempting too much, in the first instance—by gorging their memories with all the distinctions, modifications, and rules, which grammarians have thought proper to inculcate,—we have produced a disgust at the study, when, by attempting nothing more than they were able clearly to comprehend, we might have rendered it both delightful and instructive. There are, properly speaking, no oblique cases in English nouns, excepting the *possessive* case, and yet, in some grammars, we have six cases specified, similar to those of Latin nouns; and in almost every book on grammar, three cases at least are considered as belonging to English nouns. On the same principle, we might affirm that there are as many cases as there are prepositions in the language; for every combination of a preposition with a noun forms a distinct relation, and consequently may be said to constitute a distinct *case*. Were it expedient in this place, many such remarks might be offered in reference to the absurdities and intricacies of our grammatical systems, and the perplexing and inefficient modes by which a knowledge of this subject is attempted to be communicated.

In communicating to the young a knowledge of grammar, or of any other subject, that plan which is the easiest and the most interesting should of course be adopted. All intricate and abstruse definitions and discussions ought to be avoided, and nothing attempted but what is level to their comprehensions, and which may be illustrated and explained by *sensible* images and representations. In endeavouring to impart a general idea of the elements of grammar, I would, in the first instance, lead the pupils to a position where they would have a distinct view of an extensive landscape, where they might see either ships sailing, birds flying, windmills in motion, men digging the ground, or working with saws and hammers, carriages moving, or reapers cutting down the corn. I would then inform them (if they are acquainted with numbers,) that there are about fifty thousand words in the English language, but that they may be reduced to about *eight* different *classes* * or kinds; or, in other words, that all the words they see in the different books that come into their hands, however numerous they may appear, may be arranged into these classes. I would next tell them that one of these kinds of words is called *nouns*, or terms which express the *names* of all kinds of objects, and desire them to point out, in the landscape before them, some of those objects designated nouns. They would find no difficulty in complying with such a requisition, and instantly, " a house, a tree, a ship, a church, a flower, a man, a horse," and similar names, would be cheerfully vociferated. They would next be told that certain *qualities* or *properties* belong to every object; that a house may be *high* or *low*, *large* or *small*, *white*, *grey*, or *red*—a tree, *tall*, *thick*, or *slender*—that a feather is *light*—gold, *heavy*—butter, *soft*, &c.; and that the words, high, low, light, heavy, soft, &c. belong to that class termed *adjectives*, or words expressive of *qualities*. Some particular objects might then be mentioned, and the pupils requested to point out some of the qualities which they may possess. For example, *Boy*. After two or three qualities that a boy may possess are stated, they would soon apply the adjectives, *good*, *bad*, *lazy*, *diligent*, *tall*, *handsome*, *mischievous*, *beautiful*, and other qualities. As *Table*,—*round*, *oval*, *square*, *oblong*, *high*, *low*, *long*, *short*, &c., adding the word *table* to each of these qualities. To diversify this exercise a little, a quality might be mentioned, and the pupils desired to name any objects to which it will apply. For instance, the quality *Round*,—when such answers as the following might be given, "A *hat* is round, a *wafer* is round, a *saucer* is round, a *shilling* is round, e *sun* and *moon* are round.” In like manner, *High*, ich applies to towers, mountains, trees, the clouds; d *Soft*, which applies to butter, dough, jelly, slime, dding, snow, &c.

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* The words in the English language have generally been arranged into *nine* classes, or "parts of speech;" but it appears almost unnecessary to consider the article and the interjection as distinct parts of speech, particularly the interjection, which is not necessary to the construction of a sentence, being only thrown in to express the emotion of the speaker. It is proper, however, that the nature and use of these words be explained to the young. Perhaps all the words essential to language might be arranged into the four following classes: *Nouns, Attributives,* (or adjectives,) *Affirmatives,* and *Connectives.* Such arrangements, however, are of little importance, provided we convey a clear idea to those whom we instruct of the leading parts of speech which are essential to language, and be careful not to perplex their attention with too minute or unnecessary divisions.

I would next direct their attention to that class of rds which express *actions*, and request them to k around upon the landscape, and tell me if they rceive any thing *in motion*, or shifting its position m one place to another; (for motion, either men- or corporeal, is implied in every action.) Should ey hesitate in answering this request, an instance two may be pointed out; but they will seldom be a loss, and will at once reply—“ Ships are moving birds are flying—the horse is trotting—men are lking—the mason is breaking stones—the trees e waving—the labourer is digging the earth.” hey may also be told to stretch out their hands, to lk a few steps, to strike the ground with a rod, to ok up to the sky, or to perform any other action at may be judged expedient, and then informed, at the words expressive of such actions, as *walk- g*, *striking*, *breaking*, *flying*, &c. are denominated *rbs*. Having engaged them several times in such ercises, till a clear idea of the nature of a verb is mmunicated, it will be easy to explain the difference tween *active* and *neuter* verbs, and the three tenses, e *past*, the *present*, and the *future*. They may be ld, for example, that masons *broke* stones yesterday, d *will break* stones to-morrow—that James *wrote* letter to his cousin a few days ago, and *will* proba- y *write* another in a few days hence—and that rds *flew* through the air last year, and *will fly* the same manner in the year to come. The *quality* of an action, and the *manner* in which it may be performed, or any *circumstance* that happens to be connected with it, may also be explained and illustrated. Thus, they may be asked, In what manner the clouds move, and the birds fly—*slowly* or *swiftly*? In what manner the labourer performs his work—*slovenly* or *neatly*, *cheerfully* or *heavily*? In what manner the river runs—*smoothly* or *rapidly*? How James behaves during the time of instruction—*attentively* or *foolishly*? How the house to which I point is situated—*pleasantly*, *awkwardly*, or *disagreeably*? They may then be told, that such terms as *slowly*, *swiftly*, *smoothly*, *pleasantly*, &c. which express certain qualities of actions, constitute another class of words, denominated *adverbs*.

Words which express the *relations* in which objects stand to each other, may be next pointed out. They may be directed to observe that a certain house (pointing to it) stands *near* a tower, a river, or a large tree—that a house on the right hand is distant *from* another on the left—that the clouds are placed *above* the earth—that the grass is *under* our feet, and that a certain mansion is situated *upon* the declivity of a hill. Such relations might also be illustrated by desiring one of the pupils to walk *to* a certain point, suppose a tree, and then to return *from* that point to his former position;—or, to place himself in a position *before* the rest of the pupils, and afterwards in a position *behind* them—when the relative positions of objects denoted by the terms *near*, *above*, *to*, and *from*, *before*, and *behind*, may be familiarly explained, and designated by the word *prepositions*. An idea may be given of another class of words, which stand instead of names, by asking such questions as these:—How does that house look among the trees, on the opposite bank of the river? The answer might be, "*It* looks beautifully." How does that lady walk? *She* walks gracefully. What kind of a scholar is John? *He* is a good scholar. What did two wicked boys do to Arthur a few days ago? *They* struck *him* with *their* fists. By such examples, it will be easy to show that the words *it*, *she*, *he*, stand in the place of *house*, *lady*, and *John*; that *they* and *their* refer to the wicked *boys*, and that *him* stands instead of *Arthur*. They may be then informed, that such words are distinguished by the name *pronouns*; and, by a few more familiar instructions, they may be made acquainted with the nature and use of the nominative, possessive, and objective cases, both singular and plural, by which they are varied. In a similar way the nature and use of the *article* and of *conjunctions* may be pointed out and illustrated.

The plan now described may be varied, by directing the attention of the young to the objects contained in a parlour or a schoolroom—or, a large engraved landscape, accurately coloured, containing a considerable variety of objects, and representing various artificers at work, and objects in motion, might be placed before them, and used for the same purpose as a real landscape—or, they may be desired to form an imaginary picture, every one being called upon to specify the objects they wish to be put into the picture, along with their qualities, and the actions and movements they wish to have exhibited. This picture may either be *merely imaginary*, or it may be rudely sketched with a pencil on a sheet of paper. One may desire that an elegant mansion may be placed in it; another, a church with a spire, and *near* it a small cottage; another may wish to see exhibited, a smith hammering his iron, or a few persons fishing in a river; and another, a school and play-ground, a cotton-manufactory, or a steam-vessel sweeping along the river.—The exhibitions at a market or fair, a public procession, boys and girls at play, a festive entertainment, with all its accompaniments, the scenes of a sea-port, or any other scene connected with nature or human society, might be conceived or delineated for this purpose, and grammatical exercises connected with it in the manner now illustrated. I should, however, prefer a real landscape, as it appears on a fine day of summer or autumn, to any other exhibition; as real objects make a more lively impression on the mind than any picture can produce, and the view of a beautiful landscape, in the open air, is attended with the idea of liberty, freedom from formal tasks, and various exhilarating circumstances. And it ought never to be forgotten, that, by connecting the process of education with varied and pleasant associations, we gradually enlarge the sphere of juvenile knowledge, and impress more deeply on the youthful mind the instructions we intended to impart. By a few occasional lessons, in the way of amusement, on the plan now stated, which may be varied in every possible mode, more correct ideas of the parts of speech may be communicated, than what is generally done in a year or two by the dry and abstract modes in which this branch of instruction has usually been conducted.

Such a plan of instruction appears to be suggested
y the mode in which we may conceive language to
ave been originally formed. Were we to suppose
nan just now created, and placed for the first time
n the surface of this globe, his attention would, in
he first place, be directed to the various objects
hich he beheld existing around him. These he
ould endeavour, by some means, to distinguish one
rom another; and, if it were his design to invent a
nguage by which he might hold a communication
ith other rational beings, his first effort would un-
oubtedly be, to give them *names* by which the ideas
f them might be at any time recalled, when the ob-
cts themselves were absent from his view. These
rm a copious source of words, which must be com-
on to every language formed for the communication
f thought among intelligent beings, wherever exist-
g, throughout the immensity of the universe. He
ould likewise soon discover that every one of the
jects around him was endowed with certain attri-
utes or qualities, to express which another class of
ords or signs would be requisite. In the course of
is further survey, he would perceive certain changes,
otions, and events, such as the ebbing and flowing
f the sea, the rising and setting of the sun, the
ight of birds, the movements of quadrupeds, &c.
e expression of which would require a class of
ords distinct from the former. These classes
mprehend all the words which can be deemed
ential to language, or to a mutual interchange of
ntiments between rational beings. In the progress
the formation of language, however, other words
ould be found highly expedient, for the purpose of

ease or ornament, for connecting the different parts of a discourse, or to avoid circumlocutions or disagreeable repetitions; and hence the invention of pronouns, prepositions, and conjunctions. If this appears to have been the process by which language was originally formed, it likewise suggests the proper mode by which a general knowledge of the object, use, and component parts of language may be communicated to the young.

With regard to *Syntax*, in many of our initiatory grammars, there are between thirty and forty syntactical rules, many of them long and complex, and accompanied with numerous explanations, distinctions, and exceptions, all of which are intended to be crammed verbatim into the memory of the grammatical tyro, whether he understand them or not, and however ungracious and irksome the task assigned him. Is such a task necessary to be imposed, in the first instance? and, if imposed, will it tend to inspire the pupil with a greater relish for grammatical studies, or render him more accurate in the art of composition? I have no hesitation in answering such questions in the negative. Although all the rules alluded to were admitted to be useful, it would be highly inexpedient to burden and perplex a young person with such exercises, when communicating the first elements of grammatical arrangement, especially when he cannot be supposed to have a clear conception of the meaning and application of the greater part of such rules. What idea, for example, can a child of six or seven years have of such a sentence as the following, which forms only the *one-fourth* part of the 30th rule of syntax, in Blair's Grammar

—"The same adjectives, adverbs, and prepositions, are always understood to apply to their respective parts of speech, when connected by conjunctions; so that, if either of them be changed in the next clause of the sentence, or the mood or tense of the verb be changed, the nominative or its pronoun must be repeated,"—or of the following, which forms another part of the same rule—"All the parts of a sentence should correspond with each other, and a regular and similar construction be carefully preserved throughout; and this corresponding analogy in the construction of sentences constitutes the principal charm of elegant composition."*

I am fully convinced that, in the first instance, it is quite unnecessary to advert to more than three or four fundamental rules in syntax, in order to direct the young in the general construction of sentences. There is one principal rule, which, if punctually observed, would prevent any egregious blunder from being committed either in speaking or writing—and that is, "*A verb should agree with its nominative in number and person.*" This might be called, with some propriety, *the Rule* of syntax—a rule which is short and simple, which can be easily explained and comprehended, on the observation of which the meaning of a sentence frequently depends, and a rule, in short, which is most frequently violated, even by good writers, especially when their sentences are long and complex. To this rule I would add the following—"*Active verbs* and *prepositions* govern the *objective case* of pronouns;" and, in order to prevent such inaccurate expressions as "*more better*," "*more dearer*," &c. the rule, "Double comparatives and superlatives are improper," may be added. Exercises might also be given to illustrate the two following rules—"The past participle should be used after the verbs *have* and *be*;" and "The verb *to be*, should have the same case after it as before it." It ought never to be forgotten, that the habit of accurate composition depends more on *practice*, and the study of good writers, than on a multitude of *rules*; and I appeal to every one who is in the habit of composing, whether, in the moment of committing his thoughts to writing, he ever thinks of the rules of syntax, except, perhaps, some of those now specified. I have known an individual, in the lower walks of life, who had never been taught grammar, nor perused any book on the subject—who wrote essays on physical subjects, which might have been inserted with propriety (and some of them were actually inserted) in respectable scientific Journals. The only inaccuracy which appeared was an *occasional* violation of the first rule of syntax above stated. A more correct idea of the construction of sentences will be conveyed to the young by the occasional remarks of a judicious teacher, during their reading lessons—by exercising them frequently on the rules above stated, particularly the first—in causing them to correct ungrammatical sentences—and by pointing out the inaccuracies which occur in their written compositions, —than by all the formal rules that can be packed into their memories.

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* Mr. Blair, in his Preface to the Grammar alluded to, says, "A grammar for the use of schools *should not contain any thing superfluous*," and "every thing should be expressed *in the smallest number of words*,"—which are certainly good maxims, and yet some of his syntactical rules occupy nearly a page. He immediately adds, "Whatever it is desirable young people should know *they must learn by rote*—the memory is the *only faculty* of children of which teachers can properly avail themselves, and it is a vain attempt to address their immature powers of reason and reflection." Such sentiments are rather too antiquated for the nineteenth century. This gentleman, whether his name be *real* or *fictitious*, has succeeded much better in the execution of his "Class-Book," and his "Grammar of Natural Philosophy," than in his "Practical Grammar of the English Language."

All the instructions alluded to above may be imparted without the assistance of any book or manual of grammar, and that, too, almost in the way of amusement. When the pupil has arrived at the age of 13 or 14 years, such books as "Murray's English Grammar," and "Irvine's Elements of English Composition," may be put into his hands for private perusal, where he will meet with a number of minute remarks and observations on the subject, which may be worthy of his attention. But, at the same time, he may be given to understand, that the careful study of good authors, a clear conception of the subject to which his attention is directed, and the exercise of judgment, taste, and common sense, on every piece of composition, will be of more avail than any system of abstract rules; and that a breach of some of the rules laid down by grammarians may sometimes be as proper as a strict observance of them. In short, in training children to accuracy, both in grammar and orthoepy, it might have a good effect were care uniformly taken, both in the school and the parlour, to correct every expression in their ordinary conversation that is ungrammatical, or incorrect in their pronunciation—to explain the reasons of the corrections, and to endeavour, on all occasions, to induce them to express their thoughts with propriety and precision. In the schools in Scotland every child should be taught to pronounce the *English* language with accuracy, even in his common conversation, so that the Scottish language may be extirpated as soon as possible, since it will never again be the language of literature or science.

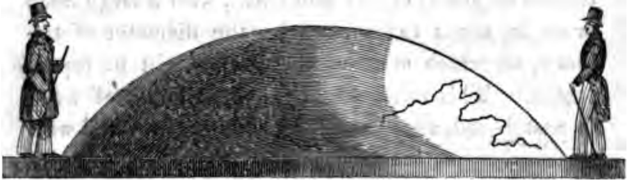
SECTION VI.—*Geography.*

Geography is a branch of knowledge with which every individual of the human race ought to be, in some measure, acquainted. It is scarcely consistent with the character of a rational being, surrounded by the immensity of the works of God, to feel no desire to become acquainted with these works, and, particularly, to remain in ignorance of the form, magnitude, component parts, and general arrangements of the terrestrial habitation allotted for his abode. It is equally inconsistent with a principle of benevolence, and with the relations in which he stands to beings of the same nature and destination, to remain altogether unacquainted with the physical and moral condition of other tribes of his fellow-men, and to feel no interest in alleviating their miseries or promoting their improvement. It is even inconsistent with the spirit of religion and the duties of a Christian, to remain in indifference with regard to geographical knowledge, for "the field" of Christian labour and benevolence is "the world" with its numerous tribes of inhabitants, which it is the great object of this science to investigate and describe. As the depositories of Revelation, of "the good things of great joy," which are intended to be communicated "*to all people*," we are bound to study this subject in all its bearings and relations, and to teach it to our children, and our children's children, that they may feel an interest in the moral condition of the inhabitants of distant lands, and employ their energies in diffusing Divine knowledge, in counteracting moral evils, in abolishing the system of warfare, and preparing the way for a harmonious intercourse among all the families of the earth. This science, therefore, ought to form a subject of study in every seminary devoted to the instruction of the young. Yet it is a fact, that, in the present state of society, we find thousands of our fellow-men almost as ignorant as the horse or the mule, of the arrangements of the world in which they dwell, and of the various tribes of human beings with which it is peopled—as if they had no connection with their brethren of the same family, nor any common relation to the Universal Parent who gave them existence.

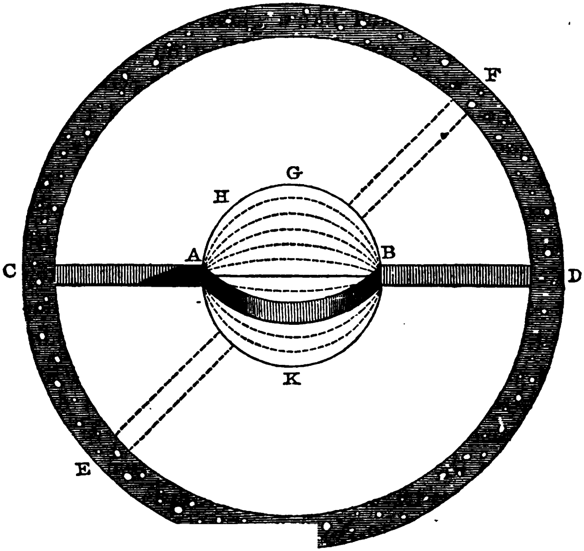
This study, like many other scholastic exercises, has too frequently been conducted in a dry and uninteresting manner, and very inadequate ideas communicated of its grand features and leading objects. Lists of the names of towns, cities, countries, rivers, bays, and gulphs, have been imposed as tasks to the memory, without any corresponding ideas; and the mechanical exercises of copying maps, and twirling an artificial globe, have not unfrequently been substituted for clear and comprehensive views of the leading facts and principles of the science. *Physical* geography has been almost entirely omitted in the initiatory books on this subject; and most of them are constructed on this principle, that the meagre descriptions and details they contain *shall be com-*

mitted to memory by rote. In this way, months and even years have been spent, and as little real knowledge of geography acquired, as there is of theology by the common routine of committing to memory the vocables of the "Church Catechism," or the Westminster Assembly's synopsis of Divinity.

In communicating a knowledge of geography, it is requisite, in the first place, to give the young a clear and impressive idea of the *size*, *form*, *component parts*, and *general arrangements* of the earth, considered simply as an object of contemplation, and a part of the creation of God. In stating to a class of pupils that "the earth is round like a ball," the *reasons* or *arguments* which prove this position should be clearly and familiarly illustrated. If they are near the sea-coast, they should be conducted to the margin of the sea, to observe how the hull of a ship, leaving the shore, disappears, near the horizon, before the sails, and the sails before the topmast; and a telescope should be provided, that the observation may be made with perfect distinctness. They may be informed, at the same time, that a ship disappears from the view, in the same manner, *in all parts of the ocean;* and if so, the ocean must form a part of the surface of a sphere; and if the ocean, with its numerous ramifications of seas, straits, and gulfs, be of a spherical form, the surface of the land must be nearly of the same figure, since it is nearly on the same level as the sea, no part of it rising more than a mile or two above this level, except the peaks of a few lofty mountains. Where there is no convenient access to the sea-coast, or the margin of a lake or river, the same fact may be illustrated by the appearance of a person going over the top of a conical hill, —or any waving tract of ground may be selected, and a little boy directed to walk from the one extremity to the other, over the highest point of it; when it will be perceived, after having passed this point, that the lower parts of his body will first disappear, and that the top of his head will be the last part of him that will be visible, as represented in the following figure.



The pupils may next be made to perceive, that if the earth be round like a globe, we might travel directly east or west, and, holding on in the same direction, without turning back, might arrive at the same point from which we set out; and then be informed, that the experiment has actually been made—that ships, at different periods, have sailed quite round the world, the course of which may afterwards be pointed out on the artificial globe. But, as these voyages have been made only in an easterly or westerly direction, they may be led to understand that, had we no other proofs of the earth's rotundity, this experiment would only prove that the earth is round in one direction, like a cylinder or a drum. The roundness of the earth, *from north to south*, might, at the same time, be explained from the fact, that when we travel a considerable distance from N. to S. or from S. *to* N., a number of new stars successively appear in the heavens, in the quarter to which we are advancing, while many of those in the opposite quarter gradually disappear; which could not happen if the earth were a *plane* in that direction, like the longitudinal surface of a cylinder: for, in this case, we should see all the stars of the heavens, from the North pole to the South, on whatever portion of the cylindrical surface we were supposed to be placed. This might be illustrated by surrounding a terrestrial globe, or any other ball, with a large hoop or circle, about twice or thrice the diameter of the globe, on which some of the stars might be represented. This circle might be made either of wood or pasteboard, and the globe within it connected with a moveable plane to represent the horizon, as exhibited in the following figure.



In this figure, the inner circle represents the earth; A, the North pole, and B, the South; and the larger circle, E C F D, a portion of the celestial sphere. It is evident, that if a person be placed at the equator at G, he will see all the stars above the horizon C D, in the hemisphere D F C. If he move to the point H, 45 degrees nearer to the North pole, the moveable plane C D may be moved in the direction E F, to represent the horizon of that place, when it will evidently appear that he has now lost sight of all the stars situated between F and D, and that the pole-star C, which, in his former position, was in his horizon, is now elevated 45 degrees above it. In a similar manner it might be shown that no such difference in the aspect of the starry heavens could take place, in travelling from South to North, or from North to South, were the earth of the form of a cylinder; and consequently, that the fact above stated proves the rotundity of the earth in that direction.

That the earth, considered as a whole, notwithstanding the irregularities caused by its mountains and vales, is of the figure of a sphere, may be illustrated from the phenomenon exhibited during the progress of an eclipse of the moon. An explanation of a lunar eclipse, accompanied with familiar illustrations, will be requisite to be given, before the proof of the globular figure of the earth be deduced from this phenomenon. Let the flame of a candle or gas-lamp represent the sun, and a wooden ball, supported by a wire, represent the earth; and let a circle, somewhat less than the diameter of the ball, be drawn on a piece of pasteboard, and coloured, to represent the

the towns, villages, and hamlets, which are scattered around, and the labours in which they are employed —the mass of waters in the rivers, and in that portion of the ocean which lies before them, (if such objects be in view,) and the numerous tribes of fishes which glide through the watery element. Let them be directed to consider the time and exertions which would be requisite to travel to the most distant part of the landscape, to go quite round it, and to cross it in forty or fifty directions, so as to attain a more intimate inspection of the multifarious scenes and objects of which it is composed. Let certain general calculations be made of the *number* and *magnitude* of such objects, of the *motion* of the inanimate parts of nature, of the activities of animated beings, and of the quantity of matter which appears on every hand. Having impressed upon their minds, as clearly as possible, such ideas of the *magnitude* and *variety* of the scene before them, let them be informed that the landscape they are contemplating is about 50 miles in circumference, and that its surface contains 200 square miles; but, that the whole surface of the earth contains more than 196 millions of square miles, and, consequently, is *nine hundred and eighty thousand times* larger than all the objects they behold around them; so that they must conceive 980,000 landscapes as large as the one before them, before they can form an adequate idea of the magnitude of the earth. To impress this idea more deeply, they may likewise be told, that, were they to remain in the station they now occupy, *ten hours* every day, (the time usually allotted for daily labour,) and were a landscape of *similar* extent to that which they behold, to pass before their view *every hour*, till the whole extent and scenery of the terraqueous globe were brought under their observation, it would require more than *two hundred and sixty-eight years* before they could survey, even in this rapid and imperfect manner, the whole superficial dimensions and variegated scenery of the globe on which we dwell.

Their attention should likewise be directed to the *solidity* of the earth—that it is not a mere superficies, but contains within its bowels an immense and indescribable mass of matter, extending nearly 7900 or 8000 miles *in every direction* between the opposite portions of its circumference, amounting to more than 263 thousand millions of cubical miles. An idea of this enormous mass of materials may be communicated by such illustrations as the following:—Suppose Mount Etna,—which ranks among the largest *insulated* mountains on the globe, and which contains around its sides 77 cities, towns, and villages, and 115,000 inhabitants,—to be 120 miles in circumference around the base, about 10 miles in circumference near the top, and 2 miles in perpendicular altitude, and considering its figure to be nearly that of the frustrum of a cone, it will contain about 833 cubical miles, which is only the $\frac{1}{316,756,481}$ part of the solidity of the globe, reckoning it to contain 263,858,149,120 cubical miles; so that it would require more than *three hundred millions* of mountains, such as Etna, to form a mass equal to that of the terraqueous globe: and were these mountains placed side by side in a straight line, they would extend 12,100,097,574, or more than *twelve thousand millions* of miles; *that* is, more than six times *the distance of Herschel*, the remotest planet of our system. And were we to travel without intermission, till we reached the extremity of such a line of mountains, at the rate of 25 miles every hour, (the utmost speed which our steam-carriages have yet attained,) it would require *fifty-five thousand, two hundred and fifty-one years*, before the journey could be accomplished. And, were they arranged in circles, equal to the perimeter of the sun, they would go 4376 times round the circumference of that stupendous globe, and cover a great portion of its surface. Again, suppose that all the inhabitants of the earth were to be employed in removing a mass of materials equal to that of our globe; suppose all that are capable of labouring to be 200 millions, and that each person removes ten cubical yards in a day, it would require more than 1,970,956,164, or, one thousand nine hundred and seventy millions, nine hundred and fifty-six thousand, one hundred and sixty-four years, before such an operation could be completed; which is more than 337,550 times the number of years which have elapsed since the Mosaic creation.

It is of some importance, that, by such illustrations, we endeavour to convey to the minds of the young a luminous and *impressive* idea of the magnitude of the globe on which we dwell. For it is the only standard, or *scale of magnitude*, by which we are enabled to form a conception of the bulk of the sun, and some of the more magnificent globes of the solar system, and of the immensity of the universe. If we entertain imperfect and contracted conceptions of the size of our globe, we shall be led to entertain similar contracted views of the celestial orbs, and of the amplitudes of creation. No adequate conception of the magnitude of our world can be conveyed to the young, by merely telling them that it is 8000 miles in diameter, and 25,000 in circumference, and showing them its figure and the divisions on its surface by an artificial globe. For, in the first place, few of them have an accurate conception of the extent of *one* thousand miles, much less of *twenty-five* thousand; and, in the next place, they are apt to fix their attention merely on the *length* of a line or a circle, without considering the *extent of surface* contained in a globe of the above dimensions; and therefore, the number of square miles comprised in the superficies of the earth, amounting to nearly 200 millions, should always be specified, as that which conveys the most correct idea of the amplitude of our globe—and, in the last place, unless an ample prospect be presented to their view, and their attention fixed upon its multifarious objects, while such instructions are imparting, the illustrations of the magnitude of the earth will neither be clear nor impressive. In a private apartment, where the view is confined to the walls of the room, such instructions would lose a considerable part of their effect.

Having thus impressed on the understandings of the pupils clear conceptions of the figure and magnitude of the earth, its leading divisions and *grand natural outlines* should next be presented to view. An eighteen-inch terrestrial globe should be placed before them, on which they should be directed to mark the great divisions of *land* and *water*—that the regions inhabited by man, and other terrestrial animals, lie between *two expansive* masses of water more than *ten thousand miles in* length, and one of them nearly the same in breadth, which cover about three-fourths of the surface of the globe—that the northern and southern portions of this watery mass are, for the most part, compacted into a body of solid *ice;* that the other portions move backwards and forwards in different directions by a kind of libratory motion, every 12½ hours, producing the flux and reflux of the sea; that currents, such as the *gulph stream*, are found in different parts of the ocean, flowing uniformly in the same direction—that the *land* is divided into three principal portions or masses, the Eastern and Western continents, and the territory of New Holland, besides thousands of islands of every form and size, which diversify the surface of the ocean—that lofty ranges of mountains, some of them three or four miles in perpendicular height, run in different directions through these continents, some of them hundreds and even thousands of miles in extent—that hundreds of rivers, many of them above 2000 miles in length, have their rise in these elevated regions, and carry an immense body of waters into the ocean—that the ocean has been sounded with lines nearly a mile in length, when no bottom was found; that it is probable, it is several miles in depth, and that its bottom is diversified with mountains and vales like the surface of the dry land; that it contains a mass of water sufficient to cover the whole globe to the height of more than a mile and a half; and that, were its caverns drained, it would require more than 20,000 years before they could be filled by all the rivers running into it at *their present* rate, although they pour into its abyss *13,600* cubical miles of water every year—that the atmosphere surrounds the whole of this terraqueous mass; that by means of this atmosphere and the solar heat, a portion of the waters of the ocean is carried up to the region of the clouds in the form of vapour, and condensed into rain to supply the sources of the rivers, and to water and fertilize the earth—and that by these, and similar arrangements of Infinite Wisdom, the lives and comforts of myriads of animated beings throughout the regions of the earth, air, and ocean, are preserved and perpetuated.

Such general views of the grand features of the globe, when occasionally enlivened with particular details of what is curious and novel to the young, cannot but arrest their attention, and excite their curiosity to acquire more minute information on the subject; while, at the same time, they have a tendency to inspire them with sublime and reverential ideas of that Almighty Being who "laid the foundations of the earth, who causeth the vapours to ascend, who measureth the ocean in the hollow of his hand, who weigheth the mountains in scales, and taketh up the isles as a very little thing." After describing such general views, the attention may be directed to various other objects connected with the physical constitution of the globe, such as rocks and insulated mountains, promontories, isthmuses, caverns, icebergs, forests, mines, and deserts—volcanic mountains, and islands that have been raised from the bottom of the ocean by the force of subterraneous agents—lakes, mediterranean seas, fountains, springs, whirlpools, gulfs, and water-spouts—the peculiarities of the different zones—the climates, and the *distribution of plants and animals* in the different regions of the earth—the atmospherical phenomena in different countries, thunder, lightning, aurora-borealis, the monsoons, trade-winds, sea and land breezes, hurricanes, and tornadoes—the distribution of *temperature* in different parts of the earth—the variety of seasons in the different zones, and the reasons why all the four seasons prevail at the same moment in different countries—the changes which have been produced on the surface of the globe by earthquakes, volcanoes, the action of water, the influence of the atmosphere, and the agency of man—the varieties of the human race, the population of the globe, and the number of individuals that are daily ushered into existence, and of those who daily retire from the living world. To these views of natural scenery may next be added explanations of maps, and of the different circles on the artificial globe, of the nature of longitude and latitude, the division of the circle into degrees and minutes, the variety of days and nights, the *reasons why the zones are bounded at particular degrees of latitude* by the tropics and polar circles, and the mode by which the circumference of the earth and its other dimensions have been determined. The explanations of *astronomical* geography, such as the causes of the different seasons, the annual and diurnal motions of the earth, and the method of finding the latitudes and longitudes of places, may be postponed till the pupil proceeds to the study of astronomy.

In describing such objects as the above, and other departments of geography, illustrative maps and delineations, such as the following, are requisite :—1. A *stereographic* projection of the globe on the plane of meridian, which divides it into the eastern and tern hemispheres; and another projection on the ie of the equator, having the poles in the centre, ding the earth into the northern and southern ispheres. Without this last projection, which is om exhibited in books of geography, the relative itions of countries in Asia, North America, and ar regions, cannot be distinctly traced. On h these maps, the *ranges of mountains* which rsify the globe, and all the *rivers* which flow a them, should be particularly delineated, with- any other objects or distinctions, except the ies of the countries, seas, oceans, rivers, and ntain-chains, in order to present to the young d, at one view, this grand and distinguishing fea- e of our globe. For want of such maps on a e scale, accurately delineated, with the moun- s and rivers represented in their proportional gnitudes, no accurate nor comprehensive ideas are erally entertained of this noble and interesting ure of the terrestrial surface. Three or four ensive chains of mountains may be distinguished, n which flow numerous ramifications, and which, h some interruptions from the sea, extend nearly nd the globe. One of these chains runs through pland, Finland, and Northern Russia, including Ural mountains, sending forth branches in dif- ent directions. Another runs along the southern ts of Europe, including the Alps and Pyrenees— ngary, Persia, Tibet, including the Himalaya, stretching in different directions, pass through ina, Japan, and the Kurile islands towards Kamt- tka, *from which anoth*er chain diverges, and establishes a connection with the grand chain of the American continent. Another ridge runs along the southern hemisphere, through Africa, Paraguay, the islands of the Pacific, and New Holland; and another extensive chain runs from north to south, along the whole length of America, including the Andes, the Rocky and the Blue mountains. The pupils should be directed to trace these ranges, with all their different branches, not only along the continents, but across the oceans, where the tops of the higher ridges appear in the form of islands, their average elevations remaining below the level of the sea. —2. Another delineation should consist of an elementary map, showing the various objects connected with geography: such as continents, islands, peninsulas, isthmuses, promontories, mountains and plains, woods and forests—rivers, lakes, seas, gulfs, friths, straits, and channels—and the manner in which cities, towns, forts, roads, shoals, sand-banks, soundings, sunken rocks, and the direction of the winds, are represented in maps.—3. Delineations showing the proportional length and breadth of the principal rivers on the globe. This might, perhaps, be more distinctly exhibited by a number of rods of different lengths, gradually tapering to a point as the respective rivers diminish in breadth, from their mouths to their sources. Other delineations might represent their lengths, not in straight lines, but with all their curves and windings.—4. A chart or delineation of the comparative size of countries, lakes, and islands; so that the proportional spaces on the globe, occupied by such countries as Russia, *China*, Great Britain, the United States, &c. may be perceived at a glance. These spaces may be represented either by squares, parallelograms, or circles. —5. An *Isothermal chart*, showing the *climates* and *vegetable* productions of the earth; in which the mean temperature of its different regions, the plants which flourish in them, the length of the longest days and nights, the divisions of the zones, and other particulars, may be distinctly noted.—6. A chart of geographical *zoology*, showing the various tribes and species of animals with which the earth is peopled, and the several regions where the different species abound. The names of the animals might be engraved instead of the names of towns, and if the chart was on a large scale, the *figures* of the most remarkable animals might likewise be engraved.—7. A map of Africa and America, and the Atlantic ocean lying between them, *on the same sheet*, for the purpose of exhibiting, *at one view*, the whole Atlantic, with its islands, and the relative positions of the coasts of Africa and South America. Also, another map, on the same scale, representing the eastern parts of Asia and New Holland on the one hand, and on the other, the western coasts of America, with the Pacific ocean, and its numerous groups of islands which intervene, for the purpose of showing the nearest approach which the old and new continents make to each other, and the relative positions of the islands and countries connected with the Pacific.—8. A map or chart of *Moral* geography, exhibiting the prevailing religion of the several countries, and the moral state of their inhabitants, which might be distinguished, *either by* different colours or by different shades in the engraving. In this map the countries enlightened by Christianity, and those which are still shrouded in Pagan darkness, might be exhibited at one view; for the purpose of showing to the young what an immense portion of the world is still immersed in heathen ignorance and idolatry, and what exertions are still requisite for enlightening the benighted nations; and for the purpose of stimulating them to bear a part in those philanthropic movements which are now going forward for the enlightening and renovation of the world.—9. Views of cities, public buildings, mountains, caves, grottos, volcanoes, interesting landscapes, and whatever scenes or objects are most striking on the surface of the globe. Some of these views might be exhibited by the optical diagonal machine formerly described.—10. Sets of coloured maps of the quarters of the globe, and its different countries, delineated in the usual way.—11. A projection of the globe *on the horizon* of the particular country where the pupils reside, for the purpose of showing the bearings and distances of places from the country in which they are placed.—12. *Slate globes*, on which the pupil may trace with a pencil the circles of the sphere, the ranges of mountains, the course of rivers, the outlines of continents and islands, and whatever else may tend to familiarize his mind to the general arrangements of the earth. On such globes mistakes may be remedied and inaccuracies corrected by the application of the sponge; and, after the pupil has been for some time accustomed to such delineations, he will soon acquire a clear and comprehensive view of the outlines of the globe, and become familiar with the relative positions of its continents, seas, and islands.—13. Delineations of the *comparative heights* of the principal mountains on the globe—the mountains in the eastern and western hemispheres being arranged in two separate groups. On the same sheet might likewise be delineated, comparative views of the heights of different *ranges*, arranging them into six or seven classes, beginning with views of such mountains as those of Scotland, Wales, and Ireland, which do not much exceed 4000 feet, and gradually proceeding to such as the Cordilleras and the Himalaya, whose summits reach an elevation of above 20,000 feet.—14. *Models* of particular countries might occasionally be made of wax or other materials, particularly of mountainous regions, for the purpose of exhibiting an idea of the scenery of a country, the windings of its rivers, and the comparative height of its mountains above the general level of its surface. No map can convey an idea of such particulars, or of the general appearance and prominent features of any country, similar to that of a well-executed model. I have seen in the Museum of the University of Edinburgh, several models of the kind to which I allude, of the vales and mountainous regions of Switzerland, in which the position of the towns, the course of the rivers, the lakes, the lines of roads, the vales, the rocks, the forests, and the comparative elevation of the mountains, are exhibited, as if one were looking down upon the country from the clouds. The only objection to such models would be the difficulty of getting them executed, and the consequent expense which would be incurred. But, if one model were accurately executed, others could easily be taken from it, on the same principle as phrenologists take casts of the human skull.

By the assistance of such maps and delineations, and with the aid of a judicious text-book, comprising a comprehensive view of the outlines of physical, mathematical, civil, statistical, and historical geography, an enlightened teacher will be enabled gradually to lead his pupils forward to luminous views of this interesting subject. In describing the different countries, he should give a comprehensive outline of whatever is peculiar to each country, and select, for particular description, whatever interesting objects of nature or art may have a tendency to excite the attention and gratify the curiosity of his pupils, referring them to their larger systems of geography for more minute details. In such descriptions, the details of moral, statistical, and religious geography, should occupy a more prominent place than they generally do in our systems of geography and scholastic courses on this subject. The statistics of our own country, of the various states of Europe, and particularly of the United States of America, which are very imperfectly known, and respecting which there exist numerous misconceptions and unreasonable prejudices on this side of the Atlantic, should be particularly detailed. The moral and mental degradation of the heathen world; the missionary stations which have been fixed in different parts of it for counteracting the influenee of barbarism and idolatry, and diffusing the light of divine knowledge; the various success which has accompanied such undertakings; and the philanthropic enterprises which are now going forward in different countries for the moral renovation of mankind, should be depicted to the view of the young with all the vividness and energy which the importance of such subjects demands, in order to allure them to the consideration of such objects, and to secure their endeavours in promoting them. It is a striking and melancholy feature in the records of our race, that almost the whole of history and historical geography is occupied with details of the miseries of mankind, produced by ambition, avarice, and injustice, the tyranny of despots, and the desolations of war; and that scarcely a bright spot can be perceived on the surface of the globe, and amidst the gloomy records of past generations, on which the eye of benevolence can rest with unmingled delight. Hence it has happened, that we have scarcely a history of the operations of pure philanthropy, except in the instance of our Saviour and his apostles. And now, when philanthropic plans have been formed, and benevolent enterprises are carrying on, our geographers and men of science, so long accustomed to blaze abroad the exploits of ambition and malignity, will scarcely condescend to notice or record the operations by which the moral world is beginning to be enlightened and regenerated. This is not what it ought to be, or what we ought to expect from those who are engaged in the diffusion of knowledge. All knowledge should be directed so as to have a moral bearing, and to stimulate the mental activities of the young to those benevolent exertions by which the best interests of their fellow-men, in every land, may be promoted.

Geographical compendiums for the use of schools *should be clear and* comprehensive in their details.

and enlivened with occasional picturesque descriptions of human scenery and of natural and artificial objects, which may be illustrated with neat engravings. They should also abound with questions and exercises of every description connected with the subject, to afford scope for the industry of the pupil, and for the exercise of his judgment and reasoning powers. But, however excellent the plan and details of any school-book may be, it ought by no means to be considered as superseding the more familiar illustrations of the teacher, and the conversational lectures alluded to above. No man can be a successful teacher of this science, but he who has a familiar and comprehensive knowledge of all the subjects connected with it, and who can, at any time, illustrate its principles and facts by *viva voce* descriptions and elucidations, which always make a deeper impression on the young mind than can be produced by the mere perusal of the best treatises. In working the usual problems on the terrestrial globe, (some of which are of little practical importance,) due care should be taken, that the pupils be not guided merely by the rules given for the respective problems, but that *they understand the reasons* why they turn the globe in this or that direction—elevate the pole to a certain degree above the horizon—or set the horary circle to a given hour. In problems which have a reference to the difference of time at different places, they may be taught to perform the operations by a mental calculation, and to ascertain, in the course of a few seconds, what nations have noon, midnight, morning or evening, at a given hour, or summer or winter, spring or autumn, on a given day or month. In commencing the study of geography, a plan or map of the town or village in which the pupils are taught, along with the adjacent country, and some of its prominent objects, might be laid before them, as introductory to the study and explanation of maps. On this map, they might be directed to attend to the cardinal points of the compass, the boundaries of the town, the streamlets or rivers, ponds or hills, and the bearings of the different streets, lanes, public buildings, and other objects, from each other; and various questions and exercises in reference to such objects might be proposed, which would excite a spirit of observation, and prepare them for understanding maps of countries on a larger scale. A map of the county, and then a map of the state or kingdom, might next form the subject of attention, which would prepare them for the study of the particular quarter of the globe in which they reside, and of all the other countries, seas, and oceans, dispersed over the surface of the earth. This plan is evidently in conformity to the order of nature, although directly opposite to the order generally pursued.*

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* Since writing the preceding parts of this work, I have been favoured, through the liberality of a respected literary correspondent in the State of *Connecticut*, North America, with a variety of school-books on *geography* and other subjects, which have an extensive circulation in the New England States. Among these are the following:—1. Woodbridge's "System of Universal Geography, on the principles of comparison and classification. 5th edition, 1833." This work, comprised in a thick 12mo. volume of 500 very closely printed pages, comprehends an immense mass of information on *physical*, *civil*, and *statistical* geography, including descriptions of a great variety of facts in relation to the *geological* structure of the earth. It is illustrated by nearly a hundred engravings of natural and artificial objects; such as sections of rivers, canals, comparative elevation of mountains, cataracts, races of man, geological sections, cities and public build-

SECTION VII.—*Geology.*

Geology is a science which, of late years, has excited the attention of philosophers, naturalists, and

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ings, which both enliven and elucidate the descriptions. Appended to this work, is a lucid and judicious compend of "Ancient Geography, as connected with Chronology," including sketches of sacred history, mythology, and the early history of mankind, by Mrs. Willard—a lady who appears to have made considerable researches into the different departments of geographical science, and to have promoted the cause of general education. Both these works are admirably calculated for the higher classes in schools, and abound with a great number of questions and exercises, for stimulating the attention and ingenuity of the young. Had this volume been sparsely printed, according to the fashion that prevailed 20 or 30 years ago, like "Playfair's Geography" and other works, it would have occupied two or three quarto volumes of 1500 pages.—2. Woodbridge's "Rudiments of Geography, on a new plan," 18mo. containing 208 closely printed pages, and about 170 cuts, and comprising a very considerable portion of information on the different departments of geography. It may be considered as partly an abridgment of the larger work noticed above, and partly an introduction to it. The cuts, though small, are sufficiently vivid and distinct to convey an accurate idea of the objects they are intended to represent. It has passed through seventeen editions, comprising more than 200,000 copies. Mr. Woodbridge is a corresponding member of the Geographical Society of Paris, and Editor of the American "Annals of Education;" and a gentleman who appears to be quite familiar with all the departments of geographical, physical, and mathematical science. His geographical works are rich in information in respect to every topic connected with his general subject, and have received the approbation of the Geographical Society of Paris, and of many scientific characters on the continent of Europe, particularly Humboldt and Fellenberg.—3. "A Practical System of Modern Geography," by J. Olney, A. M.—an 18mo. of 288 pages, closely printed on a plan somewhat similar to Woodbridge's Rudiments, illustrated with nearly a hundred engravings, and containing a very considerable portion of useful information. This work has passed through fifteen editions.—4. "The Malte-Brun School Geography," by Mr. Goodrich, a large 18mo. volume of nearly 300 pages, and containing about 133 engravings. This work contains a larger quantity of letter-press than the two former, and a great variety of facts in relation to civil and descriptive geography, but is not so full as Woodbridge's volumes in its details of *physical* and statistical theologians; and, in consequence of the researches of its votaries, many striking and important facts in relation to the structure of the earth and the changes it has undergone, have been brought to light. Many of the facts which this science discloses have a tendency to convey to the mind impressions of the wisdom, and particularly of the *power* of the Creator, in those stupendous forces which produced the convulsions and changes which have taken place both on the surface and in the interior strata of the globe. They are likewise applicable to various practical purposes. A minute and circumstantial knowledge of the various facts which have been ascertained by geologists in different countries, may be of extensive use to those employed in mining operations, when searching for coal, fossil salt, or metallic veins, and might prevent many ruinous speculations to which

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geography. Fifteen thousand copies of this work were sold in the space of eighteen months from the date of its first publication. The *Atlasses* belonging to these works are beautifully executed, and contain several of the projections I have suggested above, besides sets of maps as usually delineated, along with a variety of useful descriptions and statistical tables. In the Atlas which accompanies Olney's "Practical System," the *population* of the respective towns and cities can be ascertained at a glance, by means of certain characters and figures connected with their names. Hall's "Child's Book of Geography," and Peter Parley's "Geography for Children," each of them containing about a hundred pages, in a square 18mo. size, and embellished with a variety of maps and cuts, appear well calculated to interest the minds of youth, and to convey a general idea of the leading features of the world. Some of the above works, with a few alterations, might be published with advantage in Great Britain. They contain more particular maps and descriptions of the United States than are to be found in geographical works published on this side of the Atlantic. A comprehensive and useful compend of geography, for the use of schools, might be compiled from the volumes now mentioned, by selecting the descriptions, exercises, and more interesting portions of each, and combining them into a volume calculated for the meridian of our own country.

Fig. 1.

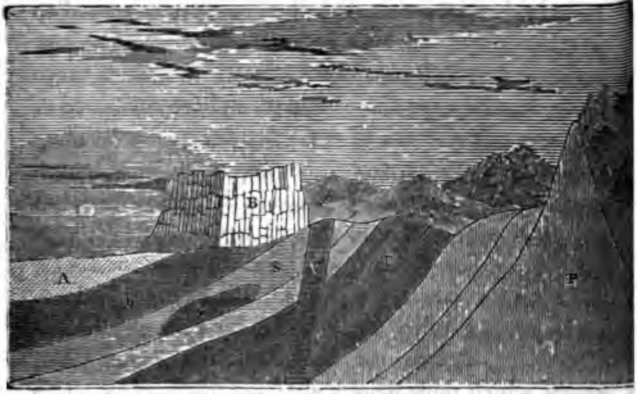
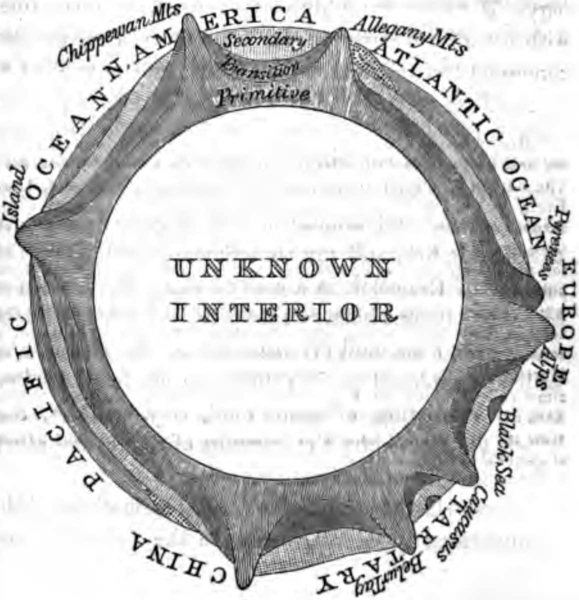

B
A
S
V
T
P

Fig 2.


Chippewan Mts
N. AMERICA
Secondary
Transition
Primitive
Allegany Mts
ATLANTIC OCEAN
Pyrenees
EUROPE
Alps
Black Sea
Caucasus
TARTARY
Belur Tag
CHINA
PACIFIC OCEAN
Island
UNKNOWN INTERIOR

which is taken from Woodbridge's "System of Universal Geography," where Fig. 1. represents the *strata of the earth*, P the primary strata, T transition, S secondary, A Alluvial, B basaltic, V vein, b bed. Fig. 2, represents a section of the earth between latitude 40° and 45° north. In conjunction with such pictorial representations, a cabinet of minerals should [illegible] procured, containing at least the following: *quartz*, *mica*, *talc*, *feldspar*, *limestone*, *argillite* or slate, *hornblende*, *gypsum*, and *chlorite*, which form what has been termed the *alphabet* of geology. Besides these, specimens should be procured of basalt, gneiss, greenstone, lava, porphyry, graywacke, and other substances mentioned above. About thirty specimens in all are sufficient for illustrating the classes of geology. Without an exhibition of these, in connection with geological descriptions, no definite ideas can be conveyed to the mind of the student on this subject.*

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* Books on geology have, of late years, increased both in number and in the interesting nature of the discussions they contain. The names of Bakewell, Macculloch, Delabeche, Buckland, Ure, Lyell, &c. are well known as cultivators of this department of natural science. The new edition of Mr. Lyell's "Principles of Geology," in 4 vols. 12mo. lately published, is perhaps one of the most luminous and attractive works which has hitherto been published on this subject—though perhaps somewhat deficient in what relates to the primary and secondary rocks, and embodying certain statements which some will be apt to consider as scarcely consistent with the records of sacred history. Dr. Comstock, of Hartford, State of Connecticut, has lately published, in a duodecimo vol. of about 340 pages, an interesting work entitled, "Outlines of Geology," which contains a *popular* and comprehensive view of this subject, and is peculiarly adapted to the instruction of general readers.

SECTION VIII.—*Astronomy.*

Astronomy is a science which has for its object to explain the motions of the heavenly bodies, their various aspects, and the facts which have been ascertained in the planetary system, and throughout the region of the fixed stars. This is a subject of considerable interest and utility. It is intimately connected with geography, navigation, agriculture, commerce, chronology, and other arts and sciences, and has lent its aid to promote their improvement. The study of it is likewise attended with many pleasures and advantages in a moral, intellectual, and religious point of view. It expands the range of the human intellect, and unfolds to our view the most striking displays of the perfections of the Deity, particularly the grandeur of his *Omnipotence.* It sets before us objects of overpowering magnitude and sublimity, and demonstrates the unlimited extent and magnificence of the universal empire of the Almighty. It has a tendency to raise the soul above grovelling pursuits and affections, to inspire hope, reverence, and humility, and to excite to the contemplation of objects far surpassing every thing we behold in this terrestrial scene, and worthy of the dignity of immortal minds. In short, it prepares the mind for the employments of the future world, and demonstrates, that the Creator has it in his power to distribute endlessly diversified streams of felicity, among every order of his intelligent offspring, throughout all the revolutions of eternity. It is a subject, therefore, on which a certain portion of information should be communicated to the young, and to every human being.

In communicating to the young instructions on this subject—instead of commencing with definitions of astronomical terms, and a vague description of the solar system, as is frequently done,—the pupils should be gradually prepared for acquiring a general knowledge of the principles of the science, *by being taught to observe, with their own eyes, the motions and general phenomena of the heavens.* The first object to which their attention might be directed, is the apparent motion of the *sun.* On some clear evening, in the month of June, (in our northern latitude,) they may be placed in a situation where they may behold the setting sun, and be desired to take particular notice of such objects as mark the place of his going down. Next morning, or the first clear morning afterwards, they may be placed in the same situation, and, having first requested them to point to the place where the sun disappeared the evening before, their attention should next be directed to the point of his rising, and to mark the terrestrial objects in the direction of which he appeared to rise. The difference between the points of his setting and of his rising should be particularly impressed upon their minds. On this day, too, about twelve o'clock, they should be directed to attend to the sun's meridian altitude. These observations may either be accompanied with certain appropriate remarks, or the pupils may be left, in the meantime, to ruminate upon them, to consider them simply as *facts,* which may be afterwards adverted to, and to form their own conclusions. Similar observations may be made from the same spot about the 23d September, and particularly about the middle of December, when the direction of the rising and setting sun, his meridian altitude, and the apparent diurnal arc he describes, will appear very different, when compared with the observations made in the month of June. Their attention might next be directed to the phases and motions of the *moon*. About three days after new moon, when the lunar crescent first makes its appearance, they may be directed to mark the *form* of the crescent, the most conspicuous *stars* in its vicinity, and its *apparent distance* from the place where the sun went down. Every clear evening afterwards, the gradual increase of the crescent, its motion among the stars, and the apparent distance it has moved during every successive period, should be particularly marked, till it arrive at the eastern part of the horizon after the sun has set in the west, when it will appear a full enlightened hemisphere. During the months of August, September, and October, when the effect of the *harvest-moon* is apparent, they may be directed to trace the gradual diminution of the full moon, through its different stages of *decrease*, till it assume the form of a half moon or a large crescent. During the months of March or April, their attention may be directed to the difference in the time of its rising on each successive day after full moon, from what takes place during the months of harvest,—in the one case, namely, in harvest, there being only about 20 minutes of difference after full moon, in its rising on each successive day; while in spring, the difference is nearly an hour and a half, which prevents her, at that season, from being seen in the form of a half moon, during her decrease, till early in the morning;—whereas, in harvest, she may be seen rising in the north-east, in the form of a half-moon, about 8 or 9 in the evening.

They may next be directed to attend to some of the *principal stars*, and the more conspicuous *constellations*, and particularly to the *apparent diurnal motion* of the whole celestial vault. The month of January is perhaps the most eligible season for such observations. About the middle of that month, at eight o'clock in the evening, the most striking and brilliant constellations visible in the northern hemisphere are then above the horizon. The *Pleiades* or Seven stars, and other portions of the constellation *Taurus*, are nearly on the meridian, at an elevation of above 60 degrees. The splendid constellation *Orion*, to the south of Taurus, is a little to the east of the meridian; *Canis Minor* to the east, and *Canis Major* to the south-east of Orion. Nearly due east, and near the horizon, is the zodiacal constellation *Leo*. To the west of the meridian are the constellations *Aries*, *Pisces*, *Cetus*, *Andromeda*, *Pegasus*, and *Cassiopeia*, which is not far from the zenith. To the north-east is *Ursa Major*, or the Great Bear, sometimes distinguished by the name of the *Plough*, or *Charles's Wain.*—The star *Aldebaran*, or the Bull's eye, is nearly on the meridian, at an elevation of 54°, supposing the place of observation to be in 52° north latitude. It is distinguished by its *ruddy* appearance. The brilliant star *Capella* is nearly 32° north by east from Aldebaran, not far from the zenith; and *Rigel*, in the left foot of Orion, is about 27° south by east of Aldebaran, and a little east of the meridian. *Betelgeux* is *north*-east from Rigel, and forms a right-angled triangle with it and Aldebaran. The stars *Castor* and *Pollux* are east by north from Aldebaran, at a considerable distance from it, (45°,) and nearly halfway between the zenith and the eastern horizon. Nearly straight south from Pollux and east from Betelgeux, is *Procyon.* These three stars form a right-angled triangle, the star Procyon being at the right angle. Near the south-eastern part of the horizon, and a little elevated above it, is *Sirius*, or the Dog-star, which is generally reckoned the most brilliant fixed star in the heavens. West from Rigel, at a considerable distance, (46°,) and at nearly the same elevation above the horizon, is *Mira*, or the Wonderful star, which changes from a star of the second magnitude, so as to become invisible once in a period of 334 days. The brilliant star *Lyra* is north-northwest, very near the horizon. The two stars in the Great Bear, called the *Pointers*, are in a direction nearly north-east from Castor and Pollux, but at a considerable distance; they direct the eye to a star of the second magnitude, in *Ursa Minor*, at a considerable distance towards the west, called *Abruccabah*, or the *Polestar*.

Having pointed out these leading stars and constellations, to serve as so many known points in the heavens, the attention might be directed, on a subsequent evening, about six o'clock, to the apparent motions of these bodies, and of the whole celestial sphere. On the evening of January 16th, at six o'clock, the star Procyon will be seen nearly due east, a very little above the horizon; Aldebaran, in an easterly direction, nearly halfway between the meridian and the eastern horizon; Rigel, towards the

h-east, a little above the horizon; and Lyra, in
north-west, about 15 degrees above the horizon.
ring marked the terrestrial objects which appear
he direction of these stars, they may be viewed,
a the same station, about two hours afterwards,
m Procyon will be found to have risen a consider-
; way above the horizon; Rigel, to have moved
rly 30 degrees to the westward; and Aldebaran,
ave arrived near the meridian; while Lyra has
cended within two or three degrees of the horizon;
Sirius, which was before under the horizon, is
rated about ten degrees above it. At ten o'clock,
same evening, Rigel and Aldebaran will be seen
considerable distance westward of the meridian;
ius, within 6 or 7 degrees of it; the star Lyra,
r the northern horizon; and the constellation
ion, which in the first observation appeared in the
ection south-east by east, will be found to have
ved to the *westward* of the meridian. By such
ervations, it may be shown that the whole starry
nament has an apparent diurnal motion from east
west. While pointing out these apparent mo-
ns to the young, it will be proper to direct their
ntion to the pole-star, which, to a common ob-
ver, never appears to shift its position. They
y likewise be directed to notice that the stars
r the pole appear to move slower, and to describe
ller circles than those at a greater distance from
—that those which rise near the south describe
ller arcs than those which rise farther to the
th—that the stars which rise due east, set due
t, after an interval of twelve hours—that the
s *which rise in the north*-east, after describing a

large arc of the heavens, set in the north-west, after an interval of about seventeen hours—that all the stars within a certain distance of the pole never appear to rise or set, but describe complete circles above the horizon—that the stars near the pole, such as those in the Great Bear, appear in one part of their course to move from west to east, and in another part of it from east to west—and that the revolutions of the whole, however different the circles they apparently describe, are completed in exactly the same period of time. These positions may afterwards be more particularly illustrated by means of a large celestial globe, by which it will be seen that all these appearances are the result of one general apparent motion, which, at first view, will appear to exist in the celestial sphere. An idea of the general motion of the stars may be acquired by a simpler process than what we have now described. Let any observer bring a star, in any position between the zenith and southern horizon, into an apparent contact with a tree, spire, or chimney-top, and, in the course of fifteen or twenty minutes, he will perceive that that star and others adjacent to it have moved a little space from east to west. But the observations alluded to above are calculated to give a more satisfactory idea of this motion, and to make a deeper impression on the minds of the young.

The next series of observations might be those which demonstrate the *apparent annual motion of the sun.* For the purpose of exhibiting this motion, the *Pleiades*, or *seven stars*, along with Aldebaran, might be selected as fixed points in the heavens to indicate the progressive motion of the solar orb to-rds the east. About the middle of January, at ght o'clock in the evening, the *Pleiades* will be seen the meridian; which observation should be noted wn, for the purpose of being compared with a fu- re observation. On the 1st March, *at the same ur*, these stars will be seen nearly halfway be- reen the meridian and the western horizon, while l the other stars, at the same declination, will be und to have made a similar progress. About the 5th April, they will be seen, at the same hour, ery near the western horizon; and every day after is, they will appear to make a nearer approach to hat part of the heavens in which the sun appears, till, eing overpowered by the splendour of his rays, they ease to be visible. From these and similar obser- ations, it will be easy to make the young perceive, hat the sun has an apparent motion from *west* to *ast*, through the circle of the heavens, and that the evolution is completed in the course of a year.

They may next be taught to acquire a definite lea of the *measures* by which the apparent distances f objects in the heavens are expressed. To talk the young, as some are in the practice of doing, f two stars being a foot, a yard, or two yards asunder, altogether vague and indefinite, unless we are ld, at the same time, at what distance the yard or ot is supposed to be placed from our eye. As tronomers divide the circumference of the celestial phere into 360 parts or degrees, they may be told, hat from any point of the horizon to the zenith re 90 degrees, and, consequently, that from the astern to the western, or from the northern to the outhern points of the horizon, are 180 degrees.

And, in order that they may have a definite idea, or something approximating to it, of the extent of a degree, they may be told that the breadth of the moon is about *half a degree*—that the space occupied by the three stars in a straight line in the *belt* of Orion—sometimes distinguished by the name of the *Three Kings*, or the *Ell* and *Yard*—is exactly 3 *degrees* in length, and, consequently, the distance between any two of them is *a degree and a half*—that the distance between *Castor* and *Pollux* is nearly 5 degrees—between *Dubbe* and *Merah*, the two *Pointers*, in the Great Bear, is 5½ degrees—and that the space between Dubbe, or the northermost pointer, and the polestar, is about 29 degrees. By familiarizing the mind with such measures, the young will soon acquire a tolerable idea of the distance of any two objects in the heavens, when the number of degrees is mentioned.

All the observations above stated may be made, in the way of an amusement, previous to the time when the pupils are expected to enter on the regular study of astronomy. They may be completed in the course of ten or twelve observations, made at different times, within the space of seven or eight months. They are intended for the purpose of stimulating the young to habits of observation and attention to the appearances of nature around them; so that, in every clear sky, they may learn to make similar observations by themselves, for confirming and amplifying their former views of the motions and aspects of the heavens. Such observations form the groundwork of astronomy, and of all the instructions they may afterwards receive in relation to this science, although they are generally neglected. When problems on the celestial globe are prescribed, and vague descriptions of the planetary system given, previous to having made these observations, the subject is seldom understood, and no clear or expansive conceptions formed by the young, of the motions, phenomena, and relations of the great bodies of the universe.—It may not be necessary, in the first instance, while making these observations, to attempt any explanation of the phenomena, but merely to impress upon the mind a clear conception of the *apparent* motions, and *relative aspects*, of the celestial orbs, as they present themselves to an attentive spectator; leaving the pupil to ruminate upon them till it shall be judged proper to direct his attention to the investigation of the true causes of celestial phenomena.

The pupil's attention might next be directed to the motions of the planets and the general phenomena of the solar system. When any of the planets are visible in the heavens, their positions in relation to the neighbouring stars should be particularly noted, so that their apparent motions, whether *direct* or *retrograde*, may be clearly perceived, which, in most cases, will be quite perceptible in the course of a few weeks or months. The direct, stationary, and retrograde movements of Mars and Venus should be particularly attended to, for the purpose of afterwards demonstrating that the annual motion of the earth accounts for the apparently irregular and complicated motions of the planetary orbs. Large diagrams, representing the apparent motions of Mars, Mercury, and Venus, as seen from the earth during the course of several revolutions, with all the appa ently irregular loops and curves they appear to d scribe*—should be laid before the pupil for his pa ticular inspection, in order that he may perceive tl improbability that such motions are real, or that Infinitely Wise Being, who is the Perfection Order, would introduce such inextricable confusi into the motions of the most splendid of his works.- A common planetarium, which shows, by whee work, the relative motions of Mercury, Venus, tl Earth, and Mars, may be easily made to illustra these motions, and to solve all their phenomen Let a circle, two or three inches broad, and of su a diameter as to surround the planets, with a fe stars marked on its inside to represent the Zodia be suspended on three pillars, so as to enclose tl Earth, Mercury, and Venus. Let a wire be fix by a socket, on the top of the pillar which suppor the ball representing the Earth, and let this wire re on a slit or fork fixed to the top of the pillar whi supports the ball representing Mercury. Wh the machine is set in motion, the wire will point o on the Zodiac the apparent motions of Mercury seen from the earth. When he passes from h greatest elongation westward to the superior conjun tion and to his greatest elongation eastward, the wi will move *eastward* according to the order of tl signs. About its greatest elongation, it will appe stationary, and immediately afterwards will mo *westward*, or contrary to the order of the signs, t it arrive at the western elongation, when it will again appear stationary;—so that the pupil will plainly perceive that the direct and retrograde motions of the planets as seen from the earth, are in perfect accordance with a regular circular motion around the sun as a centre; and that such apparently irregular movements arise from the motion of the earth, and the different velocities of the planets, when compared with it,—just as the objects around us appear to move in different directions, and with different velocities, when we are sailing along a serpentine river in a steam-boat.

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* Specimens of such diagrams may be seen in "Long's Ast nomy," vol. i. and in plate 3 of "Ferguson's Astronomy," Bre ster's edition.

The arguments or considerations which prove that *the Earth is a moving body*, should next be presented to the attention, and illustrated in the most simple and familiar manner of which the subject will admit. The pupil will easily be made to perceive, that, if the earth is at rest, the whole frame of the material universe must move round it every twenty-four hours;—not only the fixed stars, but the sun and moon, the planets and their satellites, and every comet which traverses the firmament, must participate in this motion, while, at the same time, they are moving in another and an opposite course peculiar to themselves. He will perceive, that, in proportion as these bodies are distant from the earth, in a similar proportion will be the *velocity* with which they perform their diurnal revolutions—that the sun behoved to move *five hundred and ninety-seven millions of miles* every day, the nearest fixed star 125,000,000,000,000 of miles in the same time, or at the rate of fourteen hundred millions of miles *every second*, and the most distant stars *with a velocity* which neither words can express, nor imagination conceive,—and that such motions, if they actually existed, would, in all probability, shatter the whole material frame of the universe to atoms. He may be directed to consider, that such rapid velocities (if they could be supposed to exist) are not the motions of mere points or small luminous balls, but the motions of immense globes, many thousands of times larger than the earth—that a hundred millions of such globes are visible from our abode, besides the myriads that may be hid from human view in the unexplored regions of space—and that it is impossible to conceive how all these innumerable globes, of different magnitudes, at different distances, and moving with different velocities, could be so adjusted as to finish their diurnal revolutions at the same moment, while many of them are at the same time impelled by other forces in a contrary direction. He may be reminded that the Creator, who formed the universe, is possessed of INFINITE WISDOM—that wisdom consists in proportionating *means* to *ends*, or in selecting the most appropriate arrangements in order to accomplish an important purpose—that to make the whole frame of Universal Nature move round the earth every day, merely to produce the alternate succession of day and night, is repugnant to every idea we ought to entertain of the Wisdom and Intelligence of the Divine Mind, since the same effect can be produced by a simple rotation of the earth in twenty-four hours; and since we find that Jupiter and Saturn, and other globes much larger than ours, move round their axes in a shorter period—that in all the other works of *Omnipotence*, means apparently the most simple are selected to accomplish the most grand and magnificent designs—and that there is no example known to us, throughout the universe, of a larger body revolving around a smaller. When such considerations are fully and familiarly illustrated, the pupil will soon be made clearly to perceive, that the rotation of the earth must necessarily be admitted, and that it will fully account for all the diversity of diurnal motion which appear in the sun and moon, the planets and the stars.

The *annual* revolution of the earth, and its position in the solar system, might be proved and illustrated by such considerations as the following:—that if this motion did not exist, the motions of all the planets would present a scene of inextricable confusion, consisting of direct and retrograde motions, and looped curves, so anomalous and irregular, as to be inconsistent with every thing like harmony, order, or intelligence—that Mercury and Venus are observed to have two conjunctions with the sun, but no opposition; which could not happen unless the orbits of these planets lay *within* the orbit of the earth—that Mars, Jupiter, and the other superior planets, have each their conjunctions with and oppositions to the sun, which could not be unless they were *exterior* to the orbit of the earth—that the greatest elongation of Mercury from the sun is only about 20 degrees, and that of Venus 47; but if the earth were the centre of their motions, as the Ptolemaic system supposes, they might sometimes be seen 180 degrees from the sun, which never happens —that some of the planets appear much larger and brighter at one *time* than at another, on account of their different distances from the earth; but, on the other hypothesis, their brilliancy should be always the same—that Mercury and Venus, in their superior conjunctions with the sun, are sometimes hid behind his body, and in their inferior conjunctions sometimes appear to pass across the sun's disk, like round black spots, which would be impossible according to the Ptolemaic system;—and, in short, that the times in which the *conjunctions*, *oppositions*, *stations*, and *retrogradations* happen, are not such as they would be if the earth were at rest, but precisely such as would happen, if the earth move along with all the other planets, in the stations and periods assigned them in the system which has the sun for its centre. From such considerations, when properly explained, the annual motion of the earth, and its relative position in the system, may be clearly demonstrated, and the pupil made to perceive the beauty and harmony of the celestial motions, and the necessity of having the great source of light and heat placed in the centre of the system. For as the sun is intended to cheer and irradiate surrounding worlds, it is from the centre alone that these agencies can be communicated, in a uniform and equable manner, to the planets in every part of their orbits. Were the earth the centre, and the sun and planets revolving around it, the planets, when nearest the sun, would be scorched with excessive heat, and when farthest distant, frozen with excessive cold.

There is another consideration by which the earth's annual revolution and its position in the system are demonstrated;—and that is, that the planets Mercury and Venus, when viewed through good telescopes, are found to assume *different phases*, in different parts of their orbits; sometimes appearing gibbous, sometimes like a half-moon, and at other times like a crescent, and a full enlightened hemisphere, which could never happen if they revolved round the earth as their centre, and if the earth was not placed in an orbit *exterior* to that of Venus. I have sometimes illustrated this argument, with peculiar effect, by means of an *equatorial telescope*, and a common *planetarium*. By the equatorial telescope, with a power of 60 or 80 times, most of the stars of the *first* magnitude, and some of those of the *second*, may be seen even at noonday. Venus may be seen by this instrument, in the day time, during the space of nineteen months, with the interruption of only about thirteen days at the time of her *superior* conjunction, and three days at the time of her *inferior*, so that the phase she exhibits may be seen almost every clear day. Having placed the Earth and Venus in their true positions on the planetarium, by means of an Ephemeris or the Nautical Almanack, I desire the pupil to place his eye in a line with the balls representing these planets, and to *mark the phase of Venus* as seen from the earth—whether a crescent, a half-moon, or a gibbous phase. I then adjust the equatorial telescope for Venus, if she is within the range of our view, and *show him the planet with the same phase in the heavens.* This exhibition never fails to gratify every observer, and to produce conviction. But it can seldom be made, if we must wait till the planet be visible to the naked eye, and capable of being viewed by a *common* telescope; for it is sometimes invisible to the naked eye, for nearly one half of its course from one conjunction to another. Besides, the phases of this planet are more distinctly marked in the day time, when near the meridian, than either in the morning or evening, when at a low altitude, in which case it appears glaring and undefined, on account of the brilliancy of its light, and the undulating vapours near the horizon, through which it is seen. As actual observations on the planets in the heavens make a deeper and more convincing impression on the mind of a young person, than mere diagrams or verbal explanations, I consider an equatorial telescope, in conjunction with a celestial globe and an orrery, as essentially necessary to every teacher of astronomy; as, independently of its use, now hinted at, it is the best and most comprehensive instrument for conveying an idea of the practical operations of this science. It may be made to serve the general purposes of a transit instrument, a quadrant, an equal altitude instrument, a theodolite, an azimuth instrument, a level, and an accurate universal sundial. It serves for taking the right ascensions and declinations of the heavenly bodies, and for conveying a clear idea of these operations. It may be made to point to any phenomenon in the heavens whose declination and right ascension are known; and, in this way, the planets Mercury, Herschel, Ceres, Pallas, Juno, and Vesta, a small comet, or any other body not easily distinguished by the naked eye, may be readily pointed out.*

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* A small Equatorial, having the Horizontal, Declination, and Equatorial circles about six inches diameter, surmounted with a twenty-inch achromatic telescope, with magnifying powers of from 30 to 80 times, may be procured for about fifteen or sixteen *guineas, which will serve every general purpose in teaching astronomy.*

The cause of the *variety of seasons* may next be explained and illustrated. It is difficult, if not impossible, by mere diagrams and verbal explanations, to convey a clear idea on this subject; and therefore, some appropriate machinery must be resorted to, in order to assist the mind in forming its conceptions on this point. The difficulty is, to conceive how the sun can enlighten the North Pole without intermission, during one half of the year, and the South Pole during the other, while the poles of the earth never shift their position, but are directed invariably to the same points of the heavens. This is frequently attempted to be illustrated by means of a brass hoop with a candle placed in its centre, and a small terrestrial globe carried round it, having its axis inclined to the brass circle, which is intended to represent the orbit of the earth. But this exhibition requires some dexterity to conduct it aright, and after all is not quite satisfactory. An orrery, having all the requisite movements by wheel-work, and where the Earth moves with its axis parallel to itself and inclined to the plane of the ecliptic, is the best instrument for illustrating all the variety of the seasons. When such a machine cannot be procured for this purpose, its place may be supplied by a neat little instrument, called a *Tellurian*, which has been manufactured for many years past by Messrs. Jones, Holburn, London, and may be purchased for about thirty shillings. This instrument consists of a brass ball representing the sun—which may be occasionally screwed off, and a lamp substituted in its place—an ivory ball representing the earth, having the circles of the sphere *drawn upon* it, a small ball representing the moon, and about eight wheels, pinions, and circles. It exhibits the annual motion of the earth, and the moon revolving around it, with its different phases, the cause of eclipses, the retrograde motion of the moon's nodes, and the inclination of its orbit to the plane of the ecliptic. The earth is moveable on an axis inclined 23½ degrees to the ecliptic, and its axis preserves its parallelism during its course round the sun. The seasons are exhibited on this instrument as follows:—The index, which points out the sun's place and the day of the month, is placed at the 21st March, the time of the vernal equinox, and the north and south poles of the earth are placed exactly under the *terminator*, or boundary between light and darkness. When the machinery is moved by the hand till the index points to the 21st June, the time of the summer solstice, then the North Polar regions appear within the boundary of light, and the South Polar within the boundary of darkness. Turning the machine till the index points to September 23d, both poles again appear on the boundary of light and darkness. Moving it on to December 21st, the Arctic circle appears in darkness, and the Antarctic in the light. During these motions, the earth's axis keeps parallel to itself, pointing uniformly in the same direction. This exhibition is quite satisfactory and convincing; the only objection to the instrument is, that it is *small*,—about eight or nine inches diameter—and, consequently, will admit only four or five individuals at a time to inspect its movements with distinctness.

A full and specific description should next be given *of all* the facts connected with the solar system—the distances and magnitudes of the sun and planets—their annual and diurnal revolutions—the solar spots—the belts and satellites of Jupiter—the rings of Saturn—the phases of Venus—the spots of Mars, and the mountains and cavities of the Moon. After which some details might be given of the facts which have been ascertained respecting comets, variable stars, double and treble stars, new stars, stars once visible which have disappeared, and the numerous *nebulæ* which are dispersed through different regions of the heavens. The pupils should now be gratified with a view of some of these objects through good telescopes. A telescope, magnifying about 30 times, will show the satellites of Jupiter, the crescent of Venus, the solar spots, and the rugged appearance of the Moon. With a magnifying power of 60 or 70, the ring of Saturn, the belts of Jupiter, the shadows of the lunar mountains and cavities, and all the phases of Venus, may be distinguished. But the views of these objects obtained by such magnifying powers are unsatisfactory. No telescope should be selected for this purpose less than a 3½ feet Achromatic, with powers varying from 40 to 180 or 200 times.* A power of 150 is a very good medium for inspecting all the more interesting phenomena of the heavens. With this power, distinct and satisfactory views may be obtained of the solar spots, the phases of Mercury, Venus, and Mars, the belts, and sometimes the spots of Jupiter, and the shadows of his satellites, the ring and some of the moons and belts of Saturn, the spots of Mars, the minute hills and cavities of the moon, several of the double stars, and many of the most remarkable *nebulæ.* To perceive distinctly the *division* of Saturn's ring, requires a power of at least 200 times. In exhibiting such objects to the young, especially when the lower powers are used, some attention is requisite to adjust the instrument to distinct vision, as their eyes are generally more convex than the eyes of persons advanced in life, and those who are short-sighted will require an adjustment different from that of others. Unless this circumstance be attended to, their views of celestial phenomena will frequently be unsatisfactory and obscure. In exhibiting the surface of the moon, the period of half-moon, or a day or two before or after it, should generally be selected; as it is only at such periods that the shadows of the mountains and vales, and the circular ridges, can be most distinctly perceived. At the time of *full* moon, its hemisphere presents only a variegated appearance of darker and brighter streaks, and no shadows are discernible; so that, from the telescopic appearance of the full moon, we could scarcely determine whether or not its surface were diversified with mountains and vales.

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* An Achromatic telescope of this description, with an object-glass, 45 inches focal distance, and about 3 inches diameter, with 4 or 5 magnifying powers, with a brass tube mounted on a brass tripod, may be purchased, in London, for 25 guineas.

Previous to exhibiting the moon through a telescope, it may be proper to give the observers an idea of some particular objects they will see, on which their attention should be fixed, and from which they should deduce certain conclusions. For, a view of the moon, for the first time, through a powerful telescope, is apt to overpower the eye, and to produce a confused and indistinct perception. As one of the peculiarities of the lunar surface consists in the numerous cavities, and plains surrounded with circular ridges of mountains, and insulated mountains rising from a level surface—an idea of the shadows and circumstances by which these objects are indicated should be previously communicated. This may be done by means of a saucer, the top of a small circular box, or any other object which may represent a plain surrounded by a circular ridge. In the middle of any of these objects may be placed a small peg to represent a mountain. Then placing a candle at the distance of a foot or two, so as to shine obliquely upon the objects, the inside of the circular dish farthest from the candle will be seen enlightened, while a considerable portion of the bottom will be covered by the shadow thrown upon it by the side next the candle, and the shadow of the peg will be seen verging towards the enlightened side. This previous exhibition will give them an idea of the form of some of the mountains and vales on the lunar surface, and enable them to appreciate the nature of those striking inequalities which appear near the boundary between the dark and enlightened parts of the moon. Other objects which diversify the moon's surface may be represented and illustrated in a similar manner, and sufficient time should be allowed to every observer for taking a minute inspection of all the varieties on the lunar disk. The *solar spots* may be viewed with ease, by interposing a coloured glass between the eye and the image of the sun; but, in looking through the telescope in the ordinary way, they can be perceived by only *one* individual at a time. In order to exhibit them to a company of 30 or 40 persons at once, the image of the sun may be thrown on a white wall or screen. I have generally exhibited them in the following manner. To a 3½ feet Achromatic telescope, I apply a *diagonal eye-piece*, which has a plain metallic speculum placed at half a right angle to the axis of the telescope. By this eye-piece, after the room has been darkened as much as possible, the image of the sun and his spots is thrown upon the roof of the apartment, which forms a beautiful circle of light, and exhibits all the spots which then happen to diversify his surface. His apparent diurnal motion is also represented, along with the motions of any thin fleeces of clouds which may happen to cross his disk. In this way, too, the proportional magnitudes of the spots may be measured, and compared with the diameter of the sun, and, of course, their *real magnitudes* ascertained.

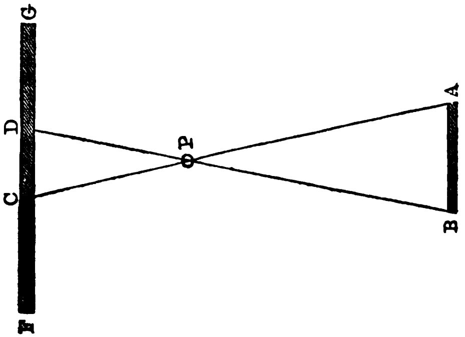
In illustrating the phenomena of the planetary system by means of orreries, planetariums, and lunariums, great care should be taken to guard the young against the false and imperfect conceptions of the magnitudes and distances of the planets, which such instruments have a tendency to convey. No orrery, of a portable size, can represent, at the same time, both the proportional distances and relative magnitudes of the different planets. Even those large machines designated *Eidouraniums* and *Transparent Orreries* afford no correct views of these particulars; and some of them convey very erroneous and distorted conceptions of the relations of the solar system, where it is the chief design to dazzle the eye with a splendid show. In some of these exhibitions

I have seen the stars represented as if they had been scattered through different parts of the planetary system.—An orrery representing the proportional distances and magnitudes of the sun and planets would require to be more than three miles in diameter; and, even on this scale, Jupiter would be less than 3 inches diameter, the Earth a quarter of an inch, or about the size of a small pea, and Mercury only about the dimensions of the head of a small pin, while the sun would require to be represented by a ball 30 inches in diameter—in which case all the planets would be invisible from the centre of the system. To correct, in some measure, the erroneous ideas which a common orrery is apt to convey, the magnitudes and distances should be *separately* represented. Suppose a celestial globe, 18 inches in diameter, to represent the Sun, Jupiter will be represented by a ball about $1\frac{4}{5}$ inch diameter, Saturn by one of $1\frac{2}{3}$ inch, Herschel by one of about $\frac{3}{4}$ inch, the Earth by a ball of $\frac{1}{6}$ inch, or somewhat less than a small pea, Venus by a ball of nearly the same size, Mars by a globule of about $\frac{1}{12}$ inch, Mercury by a globule of $\frac{1}{15}$, and the Moon by a still smaller globule of $\frac{1}{24}$ inch in diameter. These three last might be represented by three different sizes of pin-heads. When balls of these sizes are placed adjacent to an 18-inch globe, and compared with it, an impressive idea is conveyed of the astonishing magnitude of the sun, which is 500 times greater than all the planets, satellites, and comets, taken together. The *proportional distances* may be represented as follows. At one end of a table 9 feet in length, fix a ball upon a pillar to represent the sun;

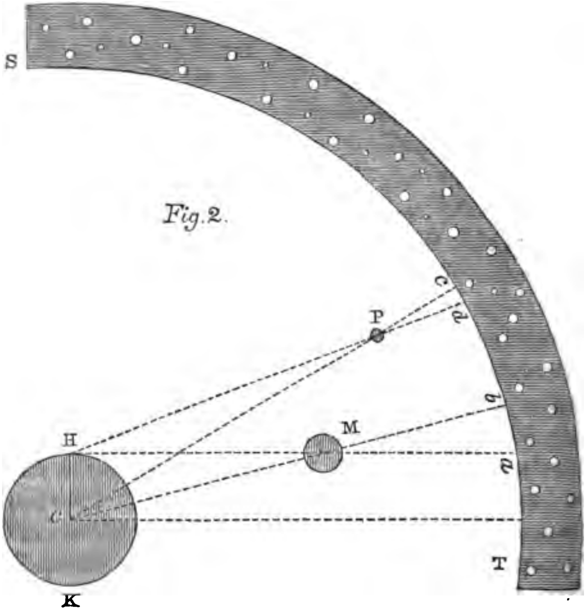
at 2 inches from the sun's ball, place another to represent Mercury; at 3½ inches, Venus; at 5 inches, the Earth; at 7½ inches, Mars; at 25 inches, Jupiter; at 47½ inches, or about 4 feet, Saturn; and, at 95 inches, or about 8 feet from the sun's ball, place one to represent Herschel. This will convey a pretty correct idea of the *proportional distances* from the sun of the principal primary planets. The distances of Ceres, Pallas, Juno, and Vesta, might likewise be represented, if judged expedient; but as their orbits are more eccentric than those of the other planets, and some of them cross each other, they cannot be accurately represented. When orreries or telescopes cannot be procured for exhibiting the celestial motions and phenomena to which I have alluded, some of these objects, such as the rings of Saturn, the belts and moons of Jupiter, the phases of Venus, the Moon, and some of the constellations, may be represented in a dark room by means of the *phantasmagoria*. But the representations made by this instrument form but a rude and paltry substitute for the exhibitions presented by the orrery and the telescope, and need never be resorted to, except for amusement, where these instruments can be obtained.

It might next be expedient to communicate to the pupil an idea of the nature of a *parallax*, to prepare him for understanding the mode by which the distances and magnitudes of the heavenly bodies are ascertained. This might be done by fixing a pole or staff, with a pointed top, in a garden or large area, opposite a wall or hedge, F G, Fig. 1, and, desiring one of the pupils to take his station at A, and another at B, and to direct their eyes to the points on the wall which appear in a line with the top of the pole, when the one stationed at A will

Fig. 1.



perceive it to coincide with the point C, and the other stationed at B will perceive it at D. They may be told that C D is the *parallax*, or the difference of the apparent place of the pole P, when viewed from the positions A and B, which is measured by the angle C P D; and that, if the distance between A and B were measured, and the number of degrees or minutes in the angle C P D or A P B ascertained, the distance between the pole and any of the stations can be easily determined. This may be easily applied to the case of the heavenly bodies by means of such a diagram as Fig. 2, where H I K represents the Earth, M the Moon, P a planet, and S T a quadrant of the starry heavens. It is evident, that, if the moon be viewed from the surface of the earth at H, she will appear in the heavens at the point *a*; but if she be viewed from the centre C, she will be seen at the point b, the angle *a* M *b* being the angle of parallax. This angle being found, which is the same as the angle H M C, and the base line H C, or the earth's semidiameter being known, which is nearly 4000 miles—the length of the line H M, or the distance of the moon, can be easily determined. It may be proper also to state, that the *farther* any heavenly body is distant from the earth, the *less* is its parallax. Hence the parallaxes of the sun and planets are all much less than that of the moon, which is the nearest celestial body to the earth. Thus, the parallax *c d* of the planet P is less than that of the Moon, M,



and the same principle likewise holds true with respect to all terrestrial objects. This subject may soon be rendered quite plain to the pupil, by familiar illustrations, in connection with a few instructions on the nature and properties of triangles, and the first principles of trigonometry.

I have been somewhat particular in some of the hints thrown out above, because it is of some importance that the young should have clear and impressive conceptions of every object presented to their view, in every step of their progress on this subject, and not depend merely on the assertions or the positions announced by their teachers; and because such a train of observations and experimental illustrations has seldom been attended to, in attempting to convey to the juvenile mind a popular view of the leading facts of astronomy. After the pupil has acquired a knowledge of the subjects to which I have adverted, an intelligent teacher will find little difficulty in gradually unfolding to him the doctrines and facts in relation to solar and lunar eclipses—the tides—the form of the planetary orbits—the nature of refraction—the divisions of time—the mensuration of the earth—centrifugal and centripetal forces—the circles of the celestial sphere—and various other particulars connected with astronomical science.

In illustrating the principles and exhibiting the objects of astronomy, the pious and intelligent teacher will have frequent opportunities of impressing upon the minds of his pupils the most sublime ideas of the Perfections of the Creator, and of the Extent and Grandeur of his Empire, and of inspiring them with Love, Admiration, and Reverence; and such opportunities ought never to be negl When descanting on the number and magnif of the celestial worlds, he may very approp take occasion to impress them with the idea *littleness* of this earth, and its comparative ins cance, when placed in competition with the nun and more resplendent worlds and systems compose the universe; and, consequently, wi folly and madness of ambition, and of all thos like schemes and ferocious contentions, of whi world has been the melancholy theatre. H occasionally expatiate a little on the folly of and its inconsistency with the character and stances of man, when we consider his comp ignorance, and the low station which he holds scale of creation—and the reasonableness of vating a spirit of *humility* in the presence Almighty Being whose "glory is above the hea and "whose kingdom ruleth over all," wh consider, that, when compared with the myr more exalted intelligences that people the un we are only like a few atoms in the immen space. He may direct their attention to the in diversified scenes of grandeur and felicity whi universe must contain, since its range is so sive and its objects so magnificent; and to t dence which these facts afford, that the Crea it in his power to gratify his rational offsprin new objects, and new sources of enjoyment, every period of infinite duration. In short, h excite them, from such considerations, to aspi that more glorious state of existence where the of Omnipotence will be more fully unfolded,

ate those holy principles and dispositions which
qualify them for mingling in the society and
ging in the employments of the heavenly world.
instructions, when amalgamated with Christian
and motives, could not fail of producing a
icial impression on the susceptible hearts of the
g, which might, in some measure, influence
conduct and train of thought through all the
ning periods of their lives.*

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he most celebrated writers on Astronomy are Long, Fer-
La Caille, Martin, O. Gregory, Vince, Herschel, Robison,
nde, La Place, Biot, and various others. Popular works
subject, which may be put into the hands of young per-
re such as the following:—Ferguson's "Gentleman and
Astronomy"—Martin's "Gentleman and Lady's Philo-
Vol. 1.—Bonnycastle's "Introduction to Astronomy"—
ryan's "Astronomy"—"The Wonders of the Heavens"—
y's "Astronomical Lessons," &c. But none of these
is adapted to the purpose of teaching. The best treatise of
nd I have seen, calculated to be a text-book for an intelli-
acher, is a work entitled "The Geography of the Heavens,"
ah H. Burritt, A.M., lately published at *Hartford*, State
necticut. This volume comprises 342 closely printed
large 18mo, and several appropriate wood-cuts. It con-
very full and lucid description of all the particulars
ing the different constellations and principal stars, the
principles of astronomy, the facts connected with the solar
problems, astronomical tables, and almost every thing
n be deemed interesting to the general student. Every
ontains *Questions*, as exercises for the judgment of the
It is accompanied by a large and beautiful Atlas, 16
by 14, containing 7 Planispheres, or Maps of the Heavens:
visible heavens in October, November, and December.
in January, February and March. 3. Do. in April, May, and
4. Do. in July, August, and September. 5. The visible
s in the North Polar Regions for each month of the year.
in the South Polar Regions. 7. Planisphere of the whole
s on Mercator's projection. "The first four maps are so
cted, that the pupil in using them must suppose himself to
south, and to hold them directly over head, in such a man-
t the top of the map should be towards the north, and the
towards the south." In the construction of these maps,
the composition of the work, the latest discoveries have

SECTION IX.—*Experimental Philosophy and Chemistry.*

The object of Natural and Experimental Philosophy is to investigate the phenomena of the material world, in order to discover their causes, and the laws by which the Almighty directs the movements of the universe; and to apply the observations and discoveries we make to useful purposes in human life, and to expand our views of the perfections and operations of the Creator. This department of study has generally been divided into the following subordinate branches, *Mechanics*, *Hydrostatics*, *Hydraulics*, *Pneumatics*, *Meteorology*, *Acoustics*, *Optics*, *Electricity*, *Galvanism*, and *Magnetism*. This is a subject, the popular and experimental parts of which may be rendered highly entertaining and instructive to the minds of the young. But, however important the subject in all its branches may be to the regular scientific student, it would be inexpedient to attempt conveying more than a *general view* of the more *popular* parts of it to young persons from the age of ten to the age of fourteen, although many of the experiments connected with it may, with propriety, be exhibited even to children of an earlier age, in order to excite a taste for the study of natural science. Experimental illustrations of the subjects of Natural Philosophy sometimes require an extensive apparatus, which cannot be procured but at a considerable

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been carefully inserted. This work, since its first publication in 1833, has had an extensive sale in the United States, and been introduced into many respectable seminaries.

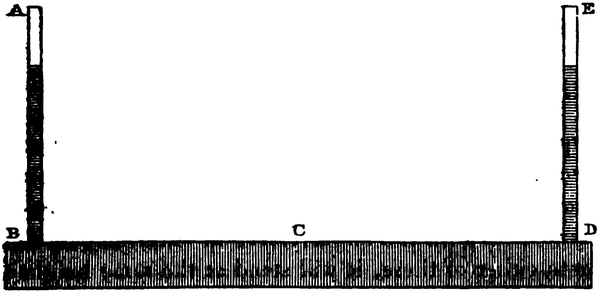
; but there are many interesting experiments,
ive of scientific principles and facts, which
performed with very simple apparatus, and at
xpense; and all that I propose, under this
is to suggest a few of those experiments
lmost every teacher may have it in his power
rm.

he department of *Mechanics*,—illustrations
e given of the *mechanical powers*, which are
ly arranged under the heads of the *lever*, the
the *wheel* and *axis*, the *inclined plane*, the
and the *screw*. A simple apparatus for illus-
these powers could easily be constructed by
nious mechanic, at a trifling expense, and
be rendered conducive both to the entertain-
nd instruction of the young. In particular,
ure and power of the *lever*, and the principle
ch it acts, should be minutely explained, by
ental illustrations, and by showing its effects
common operations of life. A long bar of
hard wood might be erected on a steady ful-
and placed in the area adjacent to the school,
might serve both for amusement and for illus-
the power of the lever. This bar might be
into feet or half feet, or any convenient num-
equal parts, and so constructed that any of
arts might be placed upon the fulcrum. By
lever the different powers to be applied at
t distances from the fulcrum, when a weight
e raised, might be familiarly illustrated. A
swing might be fixed at one end of the beam
ch a boy might sit, while some of his com-
s, towards the other end, applied different

powers or weights at different distances from the fulcrum, as a counterpoise; which would suggest various calculations respecting the powers requisite to be applied in any given case, according to the distance from the point of support. It will tend to excite their interest in this subject, when they are informed that scissors, pincers, snuffers, oars, the balance, the *see-saw*, doors turning on hinges, the rudders of ships, cutting knives fixed at one end, and the bones of the arm, are all so many different kinds of levers; and that the operations of quarrying stones, raising great weights, poking the fire, rowing a boat, digging the ground, and such like, are all performed on the principle of this mechanical power. Similar contrivances might be adopted for illustrating the *wheel and axle* and other powers. A knowledge of the mechanical powers may be useful to every individual, whatever may be his trade or profession in future life, but particularly to those who may afterwards engage in the arts of carpentry, architecture, mining, engineering, and other operations where a knowledge of the mechanical powers is essentially requisite; and the impressions made upon their minds in early life by familiar illustrations of these powers, would tend to facilitate their study of such subjects when they became the more particular objects of their attention.

The fundamental principles of *Hydrostatics* and *Hydraulics* might be familiarly illustrated by a variety of simple experiments, some of which might be rendered extremely amusing. That fluids press in all directions—that their pressure is in proportion to their perpendicular height—that a small quantity of a fluid may be made to counterpoise any quantity, however great—that a fluid specifically lighter than another will float upon its surface—that the surface of all fluids which communicate with each other will be on the same level—that the velocity with which water spouts from holes in the side of a vessel, is in proportion to the square root of the distance of the holes below the surface of the water:—These, and similar positions, along with the principles on which syphons, jets, and artificial fountains act, can be illustrated with an apparatus which every intelligent teacher, if he has the least share of mechanical ingenuity, can easily construct for himself, with the assistance of glass vessels, which are to be found in almost every family. To show that water will find its level, and rise to the same height in tubes which have a communication, an instrument similar to the following, Fig. 1. may be constructed:—A B and E D are two tubes which have a communication with each other by means of the tube B D; if water is poured into the tube A B, it will run through the tube B D, and stand at the same elevation in the tube E D.

Fig. 1.



To save expense, the tube B D may be made of wood, and plugged up at both ends; and the glass tubes A B, E D, fixed into it at each end with cement; and if B D be made flat on its under part, it will stand on a table without requiring any support. An instrument to show that a small portion of water will counterbalance a large quantity, may be made as follows:—A B, Fig. 2. is a vessel which may be either

Fig. 2.

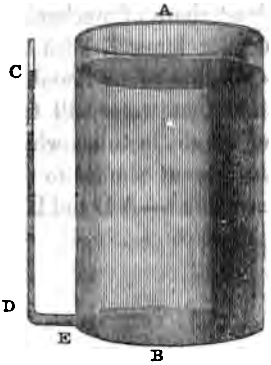
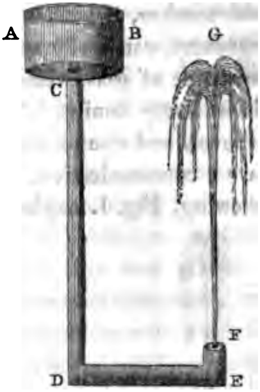
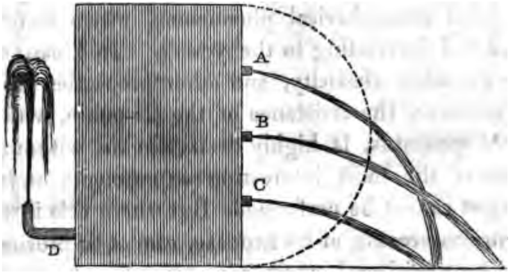


Fig. 3.



square or round, and which may be made either of wood or tin-plate; C D is a glass tube of a narrow bore, cemented into the short tube E, which communicates with the large vessel; if water be poured into either of these, it will stand at the same height in both, which proves, that the small quantity of water in the tube C D, balances the large quantity in the vessel A B, and illustrates what has been termed the *hydrostatical paradox*. Jets and fountains may be represented and illustrated by such an nstrument as Fig. 3. where A B is the reservoir, and C D E a tube connected with it, bent at right angles at D; when these are filled with water—the finger having previously been pressed upon the opening F—as soon as the finger is removed, the water rises in a jet, nearly to the height of the fountain, A B. A jet may likewise be produced by the instrument represented, Fig. 1. by plugging up the tube E D, and opening a hole at C, when a jet will arise after the tubes are filled with water. To show the different quantities and velocities of water spouting at different distances from the surface of a reservoir, such a vessel as that represented, Fig. 4. may be used.

Fig. 4.

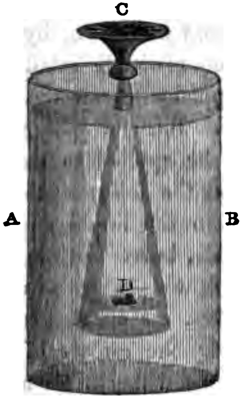


The water will issue from the orifice at C with greater velocity, and consequently in greater quantity than at B or A; if the orifice C be four times as deep below the surface as the orifice A, it will discharge twice as much water in a given time as A, because 2 is the square root of 4; if the orifice B be in the centre of the column of water, it will project the water to the greatest horizontal distance. The vessel here *represented* may be made either of wood or of tin-plate, and if a bent tube be inserted at D, and the holes A B C shut up, it may serve to exhibit a *jet d'eau.* The *cup of Tantalus*, the *fountain at command*, the *hydraulic dancers* and *divers*, and other entertaining devices might also be exhibited, and accompanied with explanations of the principles on which they act. By such means, several of the leading principles of hydrostatics might be easily impressed upon the youthful mind, and would doubtless be found of practical utility in future life, provided the teacher is careful to show, by familiar examples, how they explain many of the phenomena of nature and operations of art.

The science of *Pneumatics* affords scope for many curious discussions and experiments respecting the air and atmospherical phenomena, which may be rendered interesting to the young. In illustrating the pressure, elasticity, and other properties of the atmosphere, the assistance of the air-pump, with its usual apparatus, is highly desirable; as, without it, some of the most interesting experiments on this subject cannot be performed. But where this instrument, on account of its expense, cannot be procured, various useful and entertaining experiments may be exhibited by means of a simple apparatus which almost every one can procure. For example, the *pressure* of the atmosphere may be proved to the conviction of every one by such simple experiments as the following:—The common experiment of filling a wine-glass with water, covering its mouth with a piece of paper, and then inverting it, is quite decisive of the atmospheric pressure; for the paper underneath, instead of being convex by the pressure of the water within, is *concave*, by the pressure of the atmosphere from without; and no other cause can be assigned why the water is supported in the glass. Another simple experiment, where no paper is employed, proves the same fact: Take a glass tube, two or three feet long, with a narrow bore; put one end of it into a vessel of water, put your mouth to the other end and make a deep inspiration till the air is drawn out of the tube, when the water will rush to the top of the tube; then place your thumb on the top to prevent the access of air from above, and when the other end of the tube is taken out of the water, the column of water will be suspended in the tube by the atmospheric pressure, although the lower end of it is open. When the air is sucked out of the tube, a vacuum is produced, and the external air, pressing upon the surface of the water in the vessel, forces it to the top of the tube; the thumb being applied prevents the air pressing the water down, and the atmospheric pressure on the bottom prevents the water from running out. The same fact is proved by the following experiment: Let a piece of burning paper be put into a wine-glass, so as to rarify or exhaust the air, and while it is still burning, press the palm of the hand against the mouth of the glass, when it will adhere with a considerable degree of force, by the pressure of the atmosphere on the bottom and sides of the glass. This experiment may be varied as follows: Pour a certain quantity of water into a saucer; invert a wine-glass over a piece of burning paper or burning brandy, and, after holding it a short time in the flame, place it in the saucer, when the water will rush up into the glass in consequence of the atmospheric pressure, as it did in the glass tube when it was exhausted of its air by suction. These and similar experiments, which every one may perform, are as decisive proofs of the atmospheric pressure as those which are performed by means of the air-pump. Such experiments, when conducted by intelligent teachers, may easily be applied to the explanation of the causes of certain natural and artificial processes, such as the firm adherence of two polished surfaces—the action of a boy's sucker in lifting large stones—the operation of *cupping*—the process of a child sucking its mother's breast—the effects produced by cements—the rise of water in pumps—the firm adhesion of snails and shell-fish to rocks and stones—the action of syphons—what is termed *suction*, as when we take a draught of water from a running stream—the fact, that a cask will not run, in certain cases, unless an opening is made in its top—and many similar processes, some of which will be found of considerable practical utility.

The *elasticity* of the air may be proved by such experiments as these:—Take a bladder, and fill it with air by blowing into it, and then apply a force to the sides of it, so as to compress it into a smaller space; when the force is removed it immediately expands and fills the same space as before. This experiment proves, not only the elasticity of air, but that, though invisible, it is as much a *material* substance as wood or iron; for no force can bring the sides together, without breaking the bladder, although the parts of an empty bladder may be squeezed into any shape. The same thing is proved by the following experiment: Open a pair of common bellows, and then stop the nozle, so that no air can rush out—and no force whatever can bring the parts together, without bursting the leather, or unstopping the nozle. That heat increases the elasticity of air, may be shown, by placing before a strong fire a bladder with a small quantity of air, when the small portion of air will expand, till the bladder appear quite full and ready to burst. These experiments may be applied to the explanation of such phenomena as the following:—Why the compressed air between the liquid and the cork, in a bottle of beer or ale, bursts forth in the form of froth when the cork is drawn—why fishes, in consequence of their *air-bladders*, are enabled to rise and sink in the water—and why the carcase of a man that has been drowned, in a few days rises and floats on the surface for a short time, and then sinks to rise no more. The *compressibility* of air may be shown, by taking a glass tube which is open only at one end, and of course full of air, and plunging the open end into a vessel of water, when the water will be seen to have risen to a small height, near the bottom of the tube; which proves that the air which filled the whole length of the tube is compressed by the water, into a smaller space. In a similar way the principle of the *diving-bell* may be illustrated. Let AB, Fig. 1, represent a large tumbler or drinking-glass, which may be nearly filled with water. Place a piece of cork on the surface of the water, and over the cork an ale-glass, C D, with its mouth downwards; then push the glass perpendicularly down towards the bottom of the tumbler, and the cork will appear swimming a little above the bottom; plainly indicating that there is no water above it in the ale-glass, which is prevente entering by the resistance of the air within.

Fig. 1.



water in the tumbler may represent the wat river or of the sea; the ale-glass may represe diving-bell, in which a person may sit with sa the depths of the sea without touching the provided fresh air be supplied. A small qua water will be found to have entered the ale-gla the deeper it is plunged in any vessel the hig the water rise within it. At the depth of 3 where the pressure of the atmosphere is dou diving-bell will be half filled with water—at the of 66 feet, it will be two-thirds filled—at the of 99 feet, it will be three-fourths filled, and in proportion to the depth; which shows th priety of having this vessel in the form of that the perpendicular height of the water m as little as possible. The following simple e t illustrates the pressure of the atmosphere in a e somewhat different from those already stated. cure a tin vessel about six or seven inches long, three in diameter, having its mouth about a rter of an inch wide, as E F, Fig. 2. In its bot- make a number of small holes, about the dia- er of a common sewing-needle. Plunge this el in water, and when full cork it up, so that no can enter at the top. So long as it remains ed, no water will run out—the pressure of the osphere at the bottom preventing it; but as soon is uncorked, the water will issue from the small s in the bottom, by the pressure of the air from re. The same experiment may be made by means tube, seven or eight inches long, and about e-fourths of an inch diameter, having two or e small holes in its bottom; and another tube, I, Fig. 3, of the same dimensions, having a small in each *side*, *I K*, will illustrate the lateral

Fig. 2.

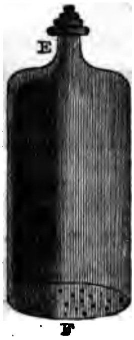
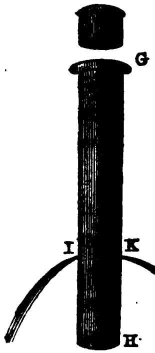


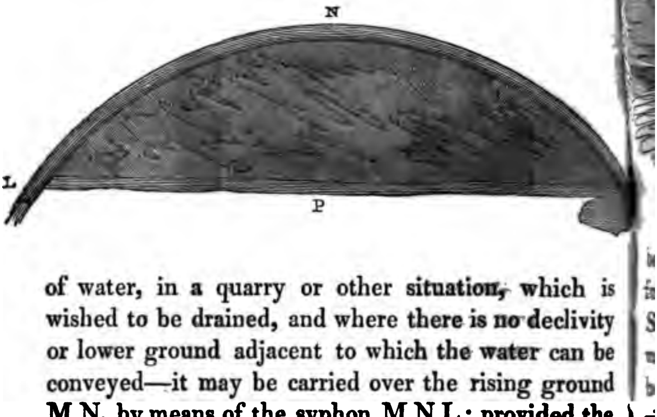
Fig. 3.



pressure of the atmosphere—the water being retained when it is corked, and running out when the cork is removed. It will likewise illustrate the lateral pressure of water and other liquids.

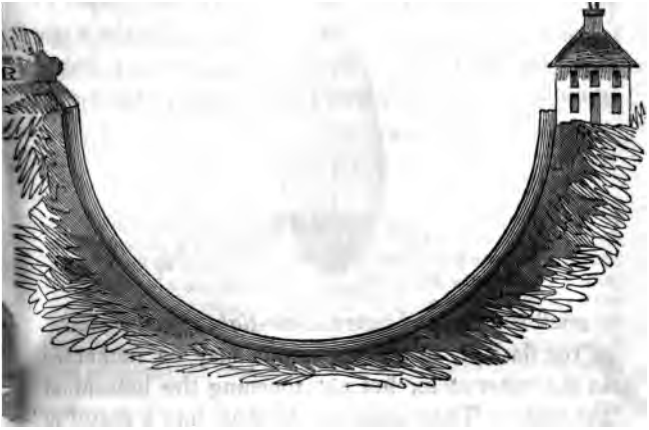
Several amusing experiments may also be performed by means of *syphons*, when concealed in drinking-cups and other vessels; and the utility of the principle on which they act may be illustrated in certain practical operations. For example, their use may be shown in conveying water over a rising ground. In Fig. 4, let M represent a pond or pool of water, in a quarry or other situation, which is wished to be drained, and where there is no declivity or lower ground adjacent to which the water can be conveyed—it may be carried over the rising ground M N, by means of the syphon M N L; provided the perpendicular elevation N P, above the level of the pool M, does not exceed thirty-two feet, for to that height only will the water rise in the syphon by the pressure of the atmosphere; and provided that the end of the syphon at L descends a little way beyond the level of the pool at M,—in which case, when the

Fig. 4.



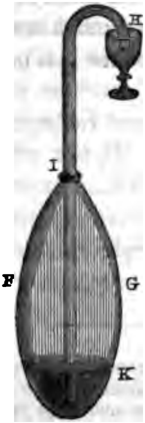
syphon is filled, the water will rush out at L, so long as any remains in the pond. In the same way may be shown how a cask of liquor may be decanted by a syphon placed in a hole made in its upper side. The use of the syphon might likewise be shown when placed in a reverse position, as in Fig. 5, when it may be applied to the purpose of conveying water from a fountain at R, along a hollow or valley to a house, S, at the same height on the other side of the valley; and however deep or broad the valley may be, the water may in this manner be conveyed, provided the syphon is sufficiently strong near its lower parts to sustain the perpendicular pressure of the water.

Fig. 5.



The following simple and interesting experiment might be exhibited to show the effects of the *expansion* of air. Procure a common Florence flask, F G, Fig. 6, and pour into it a large wine-glassfull ter; then take a tube, I H, bent at the top,

Fig. 6.



a small syphon, and fasten it *air-tight* into the of the flask, I, so that its bottom may be im in the water at K, but not touching the bo the flask. Then immerse the flask into a v very hot water, when, in consequence of the sion of the air in the flask, the water at K forced up into the tube I H, where it is recei a wine-glass at H. Holding the wine-gla which the water is now received, at the end tube, as represented in the figure, take the fl of the hot water, and plunge it into another full of cold water, and the water in the wir will be thrown back into the bottom of the fl the pressure of the atmosphere on its surfac The flask may then be again immersed in water, when the water at its bottom will be thrown up into the wine-glass as before, and the operations may be repeated as often as judged expedient. This experiment, when dexterously performed, seldom fails to produce a pleasing effect upon the spectators, especially when the water is tinged with a *red* colour, by means of the sulphuric or any other acid dropped into an infusion of red cabbage.*

The science of *Optics* affords scope for many delightful and interesting experiments; but some of its instruments are very expensive. I shall therefore state only a few simple exhibitions and experiments which can be made at a trifling expense. Before the

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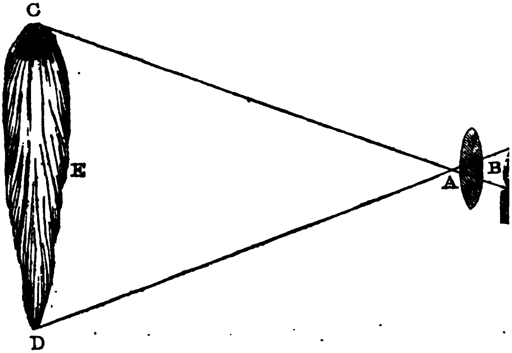
* In arranging and performing such simple experiments as those above stated, it is expedient that the teacher or operator should know how to cut phials and glass tubes, and to form syphons. The neck of a common phial may be cut off, so as to form a tube, by slightly indenting a portion of the circumference with the sharp edge of a common file, and then, with the point of a hot iron, beginning at the indentation, go round the circumference of the phial, and the head will at once be separated from the body. Otherwise, tie a thread which has been steeped in turpentine or spirits of wine firmly round the mouth of the phial, then set fire to it, and the operation is performed. In the same manner, long glass tubes may be cut into any lengths. If the tubes be of a small diameter, it is only requisite to indent them with a file at the point where they are intended to be cut, and then, holding the one end of the tube in the left hand, give a blow with the right on the other end, and the tube will snap asunder.—To bend a glass tube into the form of a syphon: Put the tube through the bars of a common grate, when the fire is burning clear; let the part of the tube which is to be bent be in the centre or hottest part of the fire; take hold of the tube at both ends, and when it begins to melt near the middle, gently bend it, with both hands, in the form which is wanted, and then remove it from the fire. A little experience will render such operations quite easy and efficient for the purpose intended. If a small bend only at one end of the tube is required, that end may be put into the fire till it begin to melt, then take hold of it gently with a pair of tongs, and bend it in the form required with the right hand.

teacher can illustrate any of the principles of
science by experiment, it will be requisite tha
provide himself with a few convex lenses, som
short and others of pretty long focal distances.
example, double or plano-convex glasses, ½ inc
inch, 3 and 4 inches, focal distance, which ma
made to illustrate the construction of a comp
microscope, as I have elsewhere shown in my v
“On the Improvement of Society.” Also le
from 3 to 6 or 8 feet focus, to illustrate the
struction of a telescope, and the nature of a ca
obscura; and two or three concave mirrors for i
trating some of the phenomena of *reflection.*
principle on which a *compound* microscope, a
microscope, and a magic lantern or *phantasmag*
are constructed, may be shown by one easy ex
ment. Let A, Fig. 1, represent a convex g
suppose six inches focal distance, and B the fla
a candle. Hold the glass, A, at a little more
six inches from the candle, and on an opposite

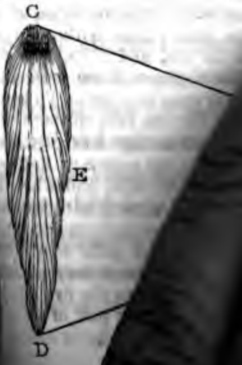
Fig. 1.



will be formed a large magnified image of the candle, C E D. This image will be inverted, and larger than the flame of the candle in proportion as the distance A E, from the glass to the wall, exceeds the distance A B, from the glass to the candle. Suppose the distance A B to be exactly 6 inches, and the distance A E to be 7 feet or 84 inches, then the image of the candle will be magnified in the proportion of 6 to 84, or 14 times. In this experiment the candle represents the *object* to be magnified in a compound microscope, A the object-glass, and C D the image formed by the lens, which is magnified a second time by the eye-glass of the microscope. In reference to the *solar* microscope, the candle represents the small object to be magnified, and C D its magnified image on a white wall or screen; and in reference to the *magic lantern*, or phantasmagoria, the candle represents the figures painted on the sliders, A the convex lens which throws the image of the figures on a screen, and C D the magnified image of the painted figures. In all these instruments, the principle on which the objects are magnified is precisely the same; the size of the image is always in proportion to its distance from the lens by which it is formed; but as the image is enlarged it becomes less brilliant and distinct, and therefore there is a proper medium which must be fixed upon as to the distance between the lens and the screen on which the image is thrown; but a skilful teacher will always know how to modify such circumstances.

The nature of a *telescope* and of the *camera obscura* may be illustrated as follows:—Fix a lens of 4, 5, or 6 feet focus, in a hole made in a window-teacher can illustrate any of the principles of this science by experiment, it will be requisite that he provide himself with a few convex lenses, some of short and others of pretty long focal distances. For example, double or plano-convex glasses, ½ inch, 1 inch, 3 and 4 inches, focal distance, which may be made to illustrate the construction of a compound microscope, as I have elsewhere shown in my work, "On the Improvement of Society." Also lenses, from 3 to 6 or 8 feet focus, to illustrate the construction of a telescope, and the nature of a camera obscura; and two or three concave mirrors for illustrating some of the phenomena of *reflection.* The principle on which a *compound* microscope, a *solar* microscope, and a magic lantern or *phantasmagoria,* are constructed, may be shown by one easy experiment. Let A, Fig. 1, represent a convex glass, suppose six inches focal distance, and B the flame of a candle. Hold the glass, A, at a little more than six inches from the candle, and on an opposite wall

Fig. 1.



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flame of the candle [illegible]

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the small object [illegible]

ified image on a white wall or screen [illegible]

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the principle on which the objects are magni-

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shutter; darken the room, so that no light can enter but through the lens.* If its focal distance be 5 feet, or 60 inches, a white screen placed at that distance will receive the image of the objects without, opposite the glass, where they will be beautifully depicted in all their forms, colours, and motions, in an inverted position, forming a kind of living picture. This exhibition never fails to excite the admiration of the young. If now, a lens about 2 inches focus be placed 2 inches beyond the image thus formed, and the screen removed—in looking through this lens, the objects will appear magnified in the proportion of 2 inches to 60, that is, 30 times; and as the image was inverted, so the object, as seen through the glass, will appear as if turned upside down. This is perhaps one of the best modes of explaining the principle of a refracting telescope, and the reason why the object appears inverted, when viewed with a single eye-glass. The same thing may be partly shown by a common telescope. Having taken out all the eye-glasses, except the one next the eye, adjust the telescope to distinct vision, and all the objects seen through it will appear as if turned upside down. The manner in which the image is reversed by the other eye-glasses, and the object made to appear upright, might then be explained. Objects might likewise be exhibited through a telescope, as appearing *in different positions and directions.* This fected by means of a *diagonal eye-piece*, which nstructed in the following manner: Let A B, . 2, represent a convex glass about 2 inches focal ance; C D a plain metallic speculum, of an oval n, well polished, and placed at half a right angle he axis of the tube; and E F, another convex , 2 inches focus. The centre of the speculum be about 1¼ inch from A B, and about ½ inch n E F. The rays proceeding from the lens A B, falling upon the speculum, are reflected in a pendicular direction to the lens E F, where they er the eye, which looks down upon the object ough the side of the tube. When this eye-piece pplied to a telescope, with the lens E F on the er part of it, we look down upon the object as if ere under our feet. If we turn the eye-piece nd in its socket a quarter of a circle towards the , an object directly before us in the south will ear as if it were in the *west*, and turned upside n. If, from this position, it is turned round a icircle towards the right, and the eye applied, same object will appear as if it were situated in

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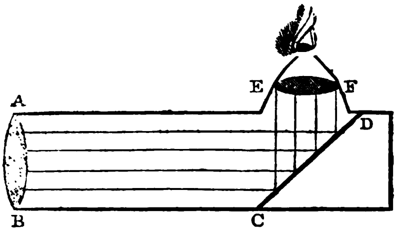
* A lens is a round piece of glass, ground either concave or convex. All lenses that magnify objects are *convex*, or thicker in the middle than at the edge, such as common magnifiers, reading-glasses, and the glasses used in microscopes and telescopes, except the Galilean perspective, in which the eye-glass is *concave.*

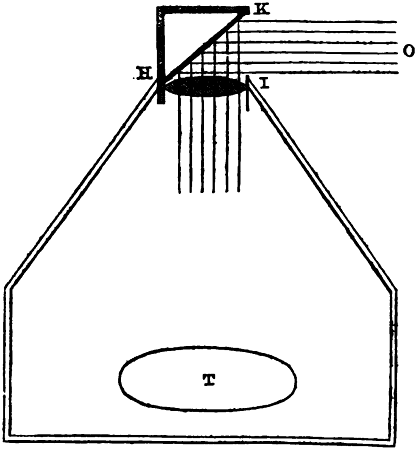
Fig. 2.



the *east;* and if it be turned round another qu
rant, till it be directly opposite to its first poi
and the eye applied from below, the object or l
scape will appear as if suspended in the atmosph
above us. Such experiments, when accompa
with proper diagrams, and an explanation of op
principles, may easily be rendered both entertai
and instructive.

A camera obscura, on a larger scale, and on a
ferent plan from that alluded to above, migh
erected on the top of every school-house, whic
constructed with a flat roof, as formerly sugges
Fig. 3 contains a representation of a wooden bu

Fig. 3.



ing, on the top of which is a large convex lens
about 10 or 12 feet focal distance. At half a
angle to this lens is a plain speculum, by which

s of light from the objects O are reflected down-
rds through the lens, which forms a picture of all
objects before the speculum, on a round white
le, T, in all their colours, motions, and propor-
ns. If the speculum be made to revolve, the whole
the surrounding landscape may be successively de-
ted on the table. When the lens is of a long focal
tance, as from 10 to 15 or 20 feet, it produces a
tty powerful telescopical effect, so that objects may
distinctly perceived at a considerable distance, and
ividuals recognised on the picture at the distance
a mile or more. Wherever there are objects in
tion, such as ships sailing, birds flying, smoke
ending, crowds of people moving to and fro, or
rs and girls engaged in their amusements; this
ibition always affords a high degree of satisfac-
n. It might occasionally be used, not only as an
stration of optical principles, but also as a reward
diligence and good behaviour.

In connection with the above, representations
ght be given of natural and artificial objects as
ibited by the *phantasmagoria*. Discarding the
iculous and childish figures which were formerly
d in the common magic lanterns, opticians have
r constructed sliders which exhibit representa-
s of the telescopic appearances of the heavenly
lies, the different constellations, the motions of
earth and moon, and various objects connected
h botany, mineralogy, and zoology; and such ob-
s, when exhibited in this manner, are calculated
produce both instruction and amusement. The
r microscope in particular, (or the *oxy-hydrogen*,
t can be procured,) should be occasionally ex-

hibited to the young, to convey to them some idea of the wonderful minuteness of the atoms of matter and the admirable mechanism displayed in the structure of vegetables and the bodies of animals, particularly in those myriads of animalculæ which are invisible to the unassisted eye. Such animalculæ may be procured almost at any season, but particularly during the summer months, by infusing in separate open vessels, small bits of grass or hay, leaves of flowers, or other vegetable substances, when, after a week or ten days, animalculæ of different kinds, according to the nature of the substances infused, will be perceived in vast numbers, by the aid of the microscope, in every drop of the infusion. A compound microscope is perhaps as good an instrument as any other for giving a steady and satisfactory view of such objects; and the only objection to its use for a school is, that only *one* individual can see the object at a time. When a teacher is not furnished with an instrument of this kind fitted up in the usual way, he may, with little trouble, construct a compound microscope, by means of the eye-piece of a common pocket achromatic telescope, which may be purchased for one guinea, or less. The eye-pieces of such telescopes contain four glasses arranged on a principle somewhat similar to that of the glasses of a compound microscope. If we screw off one of these eye-pieces, and look through it in the usual way, holding the object end about a quarter of an inch distant from any small object, such as the letters of a printed book, it will appear magnified about ten or twelve times in length and breadth; remove from the tube the third glass from the eye, which is the cond from the object, and look through it in the me manner, holding it more than an inch distant om the object, and it will appear magnified more an twenty times in diameter, or above 400 times surface. If, by means of small pasteboard tubes, any other contrivance, we attach the glass that s taken out to the outside of the object-glass of e eye-piece, so as to be nearly close to it, we shall ve a magnifying power of nearly forty times; or, we substitute for these two object-glasses a single ass of about a half-inch focal distance, we shall form pretty good compound microscope, magnifying ove forty times in diameter, and 1600 times in rface, which will afford very pleasing views of rious objects in the animal and vegetable kingdoms. he magnifying powers now stated will differ some-hat in different eye-pieces, according to their lengths d the focal distances of the glasses of which they e composed. The tube of the eye-piece thus ranged, may be occasionally fitted into a pasteboard be supported by three pillars, in which it may be oved up or down for adjusting it to distinct vision, d the object placed underneath and properly luminated. These hints are suggested, on the ore of economy, for those who have no regular icroscopic apparatus.

Various amusing experiments besides the above ight be exhibited to the young, such as the *optical aradox*, an instrument through which objects may e seen, although a board or other opaque body be terposed between the eye and the objects—the rism, which, in a dark room, separates the primary olours of the solar rays—the *multiplying* glass, which makes one object appear as if there were ten, twenty, or thirty—the *burning glass*, which, by means of the sun's rays, sets on fire dark coloured paper, wood, and other inflammable substances—and *optical illusions* produced by the various refractions and reflections of light in water, combinations of plane mirrors, and by concave speculums. A concave mirror, about 5 or 6 inches diameter, and 10 or 12 inches focus, which may be procured for about half-a-guinea or 15 shillings, is of great utility for a variety of exhibitions. 1. When held at nearly its focal distance from one's face, it represents it as magnified to a monstrous size. 2. When held in the solar rays, directly opposite the sun, it collects the rays into a focus before it, so as to act as a powerful burning glass, and in this way a hole may be burned in a thin board. 3. When hung at an elevation of about 5 feet, and a person placed opposite to it, at 6 or 7 feet distant, he will see his image hanging in the air in an inverted position, between him and the mirror, and if he approach a little nearer the mirror, and hold out his hand towards it, the image will appear to do the same, as if about to shake hands, and if he stretch his hand still nearer the mirror, the hand of his image will appear to pass by his hand, and approach nearer his body. 4. Such a mirror is of use in explaining the construction of a *reflecting* telescope. When it is held opposite to a window, the image of the sash and of the objects without the window will be seen depicted in its focus on a piece of white paper held between it and the window, which represents the manner in which the first image is formed by the great mirror of a reflecting telescope;—and the man-

or in which the small speculum of a Gregorian flector forms the *second* image, may be shown by lding the mirror at a little more than its focal distance behind a candle, and throwing its magnified nage upon an opposite wall, in the same way as the ns, fig. 1, p. 372, by refraction, produced the enlarged nage C D. 5. If a bright fire be made in a large om, and a very smooth, well-polished mahogany ble be placed at a considerable distance near the all, and the concave mirror so placed that the light f the fire may be reflected from the mirror to its cus on the table—a person standing at a distance ward the fire, but not directly in the line between e mirror and the fire, will see an image of the fire pon the table, large and erect, as if the table had een set on fire.

Various illusions and deceptions have been prouced by means of concave mirrors. Pagan priests re supposed to have rekindled the Vestal fire by this nstrument; and with the same instrument, on a large cale, Archimedes is reported to have burned the Roman fleet. When the mirror is concealed from the view of a spectator by certain contrivances, he may be easily deceived and tantalized with a shadow nstead of a substance. He may be made to see a essel half full of water inverted in the air without losing a drop of its contents. He may be desired to grasp what appears a beautiful flower, and, when he attempts to touch it, it vanishes into air, or a eath's head appears to snap at his fingers. He may be made to behold a terrific spectre suddenly starting up before him, or a person with a drawn sword, as if bout to run him through. An exhibition of this kind was some time ago brought before the public, which was effected by a concave mirror. A man being placed with his head downwards, in the focus of the mirror, an *erect* image of him was exhibited, while his real person was concealed, and the place of the mirror darkened; the spectators were then directed to take a plate of fruit from his hand, which, in an instant, was dexterously changed for a dagger or some other deadly weapon.—It may not be improper occasionally to exhibit such deceptions to the young, and leave them for some time to ruminate upon them till the proper explanations be given, in order to induce them to use their rational powers in reflecting on the subject, and particularly to teach them to investigate the causes of every appearance that may seem mysterious or inexplicable, and not to ascribe to occult or supernatural causes what may be explained by an investigation of the established laws of nature; and to guard them against drawing rash or unfounded conclusions from any subject or phenomenon which they have not thoroughly explored, or do not fully comprehend.

Having enlarged much farther than I originally intended on the preceding departments of Natural Philosophy, I have no space left for suggesting any hints in relation to electricity, galvanism, and magnetism. If the teacher is possessed of an electrical machine and a galvanic apparatus, and is acquainted with his subject, he has it in his power to exhibit a great variety of very striking experiments which can never fail to arrest the attention of the juvenile mind, and prepare it for entering on explanations of some of the sublimest phenomena of nature. But without these instruments very few experiments of any degree of interest can be performed in relation to these subjects. The illustration of the phenomena of *magnetism* requires no expensive apparatus. Two or three small, and as many large bar magnets—a large horse-shoe magnet, a magnetic compass, and a few needles, pieces of iron, and steel filings, may be sufficient for illustrating the prominent facts in relation to this department of philosophy. But as I have already thrown out a few hints on this subject in the lesson on the *Sagacious Swan*,* it would be needless to enlarge.—My only reason for suggesting the above hints and experiments is, to show that any teacher, at a very small expense, may have it in his power to illustrate, in a pleasing manner, many of the most interesting and practical truths connected with natural philosophy. Most of the apparatus alluded to above could be procured for two or three pounds, provided the experimenter apply his hands and construct a portion of it himself, which he can easily do when the materials are provided. In regard to philosophical apparatus of every description, were there a general demand for it from all classes of the community, it might be afforded for less than one half the price now charged for it, as certain portions of it might be constructed of cheaper materials than are now used; as *elegance* in such instruments is not always necessary for *use*; as competition would reduce their price to the lowest rate, and as there would be no necessity for great profits when the manufacturers were certain of a quick and extensive sale.

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* See page 240.

Chemistry.—Chemistry, in its present improved state, is a science so interesting and useful, so intimately connected with the knowledge of nature, the improvement of the useful arts, and with every branch of physical and practical science, that an *outline*, at least, of its leading principles and facts should be communicated to all classes of the young. The distinguishing properties of the *simple substances*, such as oxygen, nitrogen, carbon, hydrogen, chlorine, iodine, sulphur, and phosphorus—particularly oxygen, nitrogen, carbon, and carburetted hydrogen, should be minutely described, and illustrated by experiments, and their extensive influence in the system of nature particularly detailed. The laws of chemical affinity—the nature and properties of *heat*, its radiation and expansive power, and the effects it produces on all bodies—the composition and decomposition of water, the nature of crystallization, the properties of earths, metals, acids, and alkalies, the nature of combustion, chemical action and combinations, the component principles of animal and vegetable substances, and various other particulars, may be impressed upon the minds of the young, and rendered familiar by a variety of simple experiments which can be easily performed. Many of the most important and luminous facts of this science may be exhibited by the aid of a few Florence flasks, glass tubes, common phials, tumblers, wine and ale glasses—of which I intended exhibiting some specimens, had my limits permitted. In the meantime I refer the reader to Accum's volume entitled "Chemical Amusements," which contains a perspicuous description of nearly 200 interesting experiments on this subject, with a

tion of the *rationale* of each experiment.
s Recreations in Chemistry; Thomson's,
's, Parkes', Graham's and Donovan's trea-
r any other modern system of chemistry,
o be consulted.*

SECTION X.—*Mathematics.*

nowledge of certain departments of the mathe-
sciences is essentially requisite for under-
g many of the discussions and investigations
ed with natural philosophy, astronomy, geo-
, and navigation, and for various practical
s in the mechanical arts; and, consequently,
to form a portion of every course of general
on. During the first stages of elementary
ion, a knowledge of the names and some of
perties of angles, triangles, squares, parallelo-

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withstanding the numerous excellent treatises on natural
hy and chemistry which have been published of late
e have scarcely any books on these subjects exactly
for the use of schools. Blair's "Grammar of Natural
hy," and "Conversations" on the same subject by Mrs.
contain a comprehensive view of the leading subjects of
hilosophy, which may be recommended to the perusal of
rsons; but they are scarcely adapted to the purpose of
Dr. Comstock of America, formerly mentioned, (page
ely published a "System of Natural Philosophy," for the
dents and preceptors, which has already passed through
ions. This volume contains about 300 closely printed
d above 200 wood-cuts, and comprises a popular and
illustration of the "Properties of Bodies, Mechanics,
tics, Hydraulics, Pneumatics, Acoustics, Optics, Astro-
lectricity, and Magnetism," with questions in the margin
page for exercising the judgment of the student. It is
d for being an excellent text-book in colleges and acade-
it would require to be somewhat reduced and simplified,
it to the use of common schools.

grams, trapezoids, trapeziums, circles, ellipses, parallels, perpendiculars, and other geometrical lines and figures, may be imparted, on different occasions, by way of amusement, as is generally done in infant schools, which would prepare the way for entering on the regular study of mathematical science. The usual method of teaching mathematics is to commence with the "Elements of Euclid," proceeding through the first six, and the eleventh and twelfth books, and afterwards directing the attention to the elements of plane and spherical trigonometry, conic sections, fluxions and the higher algebraic equations, in which the attention of the student is chiefly directed to the *demonstration* of mathematical propositions, without being much exercised in practical calculations. This is the *scientific* method of instruction generally pursued in colleges and academies, and if youths of the age of fourteen or fifteen were capable of the *attention* and *abstraction* of angelic beings, it would likewise be the *natural* method. But a different method, I presume, ought to be pursued in schools chiefly devoted to popular instruction. After the pupil has acquired a competent knowledge of arithmetic, let him be conducted through the different branches of *practical geometry*, including the mensuration of surfaces and solids, artificers' work and land-surveying, exhibiting occasionally a demonstration of some of the rules, in so far as he is able to comprehend it. After which, a selection should be made from Euclid, (chiefly from the first book,) of those propositions which have a *practical* bearing, and which form the foundation of practical geometry and the operations of plane trigonometry. These, which might be comprehended within the limits of thirty or forty propositions, should be arranged into a kind of system, which might be divided into propositions relating to *quadrilateral* figures, *triangles*, *circles* and *conic sections*. The demonstrations of these should be clear and explicit, and as simple as the nature of the subject will admit, and the steps of the demonstration of each proposition should be thoroughly understood before proceeding to another. At the same time, the bearing of the truths demonstrated upon the several practical operations of geometry, and their general utility, should be distinctly pointed out as the teacher proceeds in his demonstrations; and the pupil, having previously been occupied in calculations relating to geometrical figures, will be enabled to *appreciate* such demonstrations, and will feel a greater interest in such exercises than he would otherwise do, were he to consider them as relating merely to *abstract truths* which have no useful tendency. He might next proceed to the statements and calculations connected with the different cases of plane trigonometry, applying them to the mensuration of all the cases of terrestrial heights and distances, and to the determining of the distances and magnitudes of the heavenly bodies and the altitude of the lunar mountains.

This is the whole course of mathematical instruction I would deem it necessary to communicate *in the first instance;*—and, with a knowledge of the practical operations of geometry and trigonometry, and of the principles on which they are founded, the pupil would be enabled to understand all the prominent parts of useful science to which mathematical principles are applicable, and to apply them to the practical purposes of life. If he feel a peculiar relish for mathematical investigations, or if his situation or profession in future life require an extensive knowledge of the higher departments of this study, he can easily prosecute, at his leisure, such studies to any extent, on the foundation of what he had previously acquired. When a young person, of the age of twelve or fourteen, commences the study of "Euclid's Elements," or any similar work, he is at a loss to conceive what useful purpose can be served by fixing his mind on squares, parallelograms and triangles, and pestering himself in demonstrating their relations and proportions. After encountering some difficulties, he perhaps acquires a pretty clear conception of the demonstrations of the first and most simple propositions; but as he proceeds in his course, the propositions become more complex and difficult to be conceived, and the steps of the demonstration more tedious and complicated; he forgets the conclusions formerly deduced, his mind becomes bewildered, and, in too many instances, he follows his preceptor in the dark, relying more on his authoritative assertions than on a clear perception of the force of his demonstrations; his ideas become confused, and he loses all relish for the study, because he cannot perceive the practical purposes to which such abstract speculations can be applied. This, it may be affirmed, is the case with more than one-half of those who attempt the study of pure mathematics at an early age, without having previously been exercised in the practical operations of the science. It is for this reason I would recommend a short course, or outline of practical geometry and trigonometry before proceeding to the demonstration of theorems, or the more abstract parts of mathematical science. So far as my experience goes, I have uniformly found, that those who had been well exercised in the different branches of mensuration, and the practical parts of trigonometry, previous to their entering on a course of pure mathematics, have acquired a relish for such studies, and become eminent proficients in them; while their fellow-students, who had no previous experience in practical calculations, lagged far behind them, and seldom entered into the spirit of such subjects. I could point to several individuals of this description, who ultimately attained the highest mathematical prizes bestowed at the colleges and academies at which they attended.

SECTION XI.—*Physiology.*

This is a department of knowledge which has never yet been introduced into any seminary, as a branch of general education. It is somewhat unaccountable, and not a little inconsistent, that, while we direct the young to look abroad over the surface of the earth and survey its mountains, rivers, seas, and continents, and guide their views to the regions of the firmament, where they may contemplate the moons of Jupiter, the rings of Saturn, and thousands of luminaries placed at immeasurable distances,—that, while we direct their attention to the structure and habits of quadrupeds, birds, fishes, and insects, and even to the microscopic animalculæ in a drop of water —we should never teach them *to look into themselves*, to consider their own corporeal structures, the numerous parts of which they are composed, the admirable functions they perform, the wisdom and goodness displayed in their mechanism, and the lessons of practical instruction which may be derived from such contemplations. An intelligent writer in the "American Annals of Education," has justly remarked—"The person who should occupy a dwelling seventy, eighty, or a hundred years, and yet be unable to tell the number of its apartments, or the nature and properties of any of its materials, perhaps even the number of stories of which it consisted—would be thought inexcusably ignorant. Yet, with the exception of medical men, and here and there an individual belonging to the other professions, is there one person in a thousand who knows any thing about the elementary materials—the structure or even the number of apartments in the present habitation of his mind?" It is not because this study is either uninteresting or unaccompanied with mental gratification, that it is so generally neglected; for to "*know ourselves,*" both physically and intellectually, is one of the first duties of man, and such knowledge has an extensive practical tendency, and is calculated to gratify the principle of curiosity, and to produce emotions of admiration and pleasure. "Does it afford no pleasure," says the writer I have now quoted, "to study the functions of the stomach and liver, and other organs concerned in changing a mass of beaten food, perhaps some of the *coarser vegetables*, into blood?—of the heart, and arteries, and veins, which convey this fluid, to the amount of three gallons, through all parts of the body once in four minutes?—of the lungs, which restore the half-spoiled blood to its wonted purity, as fast as it is sent into them, and enable it once more to pursue a healthful course through its ten thousand channels?—of the brain, and especially the nerves, which by their innumerable branches spread themselves over every soft part of the human system (and some of the harder parts) which they can possibly penetrate, in such numbers that we can nowhere insert the point of the finest needle without piercing them?—of the skin, every square inch of which contains the mouths or extremities of a million of minute vessels? Is all this, I say, uninteresting? Is there no wisdom displayed in the construction of so complicated, and yet so wonderful a machine, and endowing it with the power of retaining an average heat of 96 or 98 degrees, whether the surrounding atmosphere be heated to 100 degrees or cooled to 32, or even to a much lower point? Is there, moreover, no mental discipline involved in the study of physiology?"*

The evils arising from ignorance of the corporeal functions, and of the circumstances by which they are impaired, are numerous and much to be deplored. From ignorance of the structure and functions of the digestive organs, parents, in many instances, allow their children to eat and drink every thing they desire, and to gorge their stomachs, till diseased action of the organs connected with digestion necessarily ensues, accompanied with the other disorders which generally follow in its train. To the same cause is owing the practice of administering to infants, cordials, elixirs, laudanum, and *spirituous liquors*—a practice in which no person will indulge who is acquainted with the laws which regulate the functions of the corporeal frame, and which has a tendency not only to injure the individual, but to perpetuate a degenerated race through successive generations. From ignorance of the nature of *perspiration*, and the *functions of the skin*, children are permitted to wallow in dirtiness and filth, to remain moist, cold, and benumbed, and to pass days and even weeks without being washed or receiving a change of linens; by which they are, sooner or later, subjected to cutaneous and inflammatory disorders. Ignorance of this subject has likewise led to those awkward attempts, particularly on the part of the female sex, to remodel the human frame, as if they could improve the mechanism and symmetry devised by Infinite Wisdom. Hence the derangement of the physical system produced by laced stays, strait jackets, corsets, and other absurd articles of dress, by which the ribs are compressed, the spine bent out of its place, and the free expansion of the lungs prevented; the consequences of which are,—diseases of the breast, shortness of breath, external callosities, defective digestion, tubercles of the lungs, and a tendency to pulmonary consumption. The following figures show how such unnatural practices tend to distort even *the very bones*, as well as the muscular parts of the body. They are taken from No. 58. of the "Penny Magazine." Fig. 1.

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* Mr. Alcott, "American Annals of Education" for September, 1833,—a journal which is conducted with admirable spirit by Mr. Woodbridge, and which contains a variety of valuable communications, and much important statistical information, respecting the improvements going forward in Europe and America, in connection with the subject of education.

an outline of the celebrated statue of the Venus e Medicis, which is considered as the most beautiful nd symmetrical model of a fine female figure. Fig. is the skeleton of a similar figure, with the bones

Fig. 1.

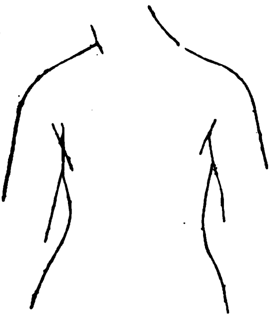
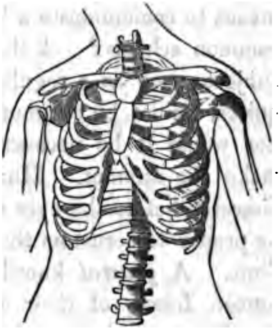


Fig. 2.



n their natural position. Fig. 3. is an outline of the igure of a modern fashionable lady, after it has been ermanently *remodelled* by stays. Fig. 4. is the keleton belonging to such a figure as No. 3. From hese figures it appears that the size of the chest be-

Fig. 3.

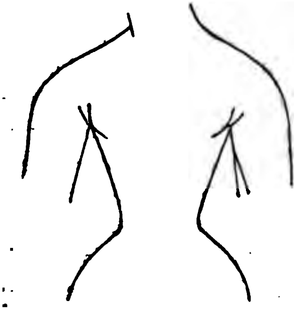
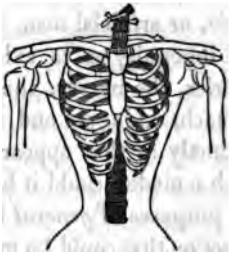
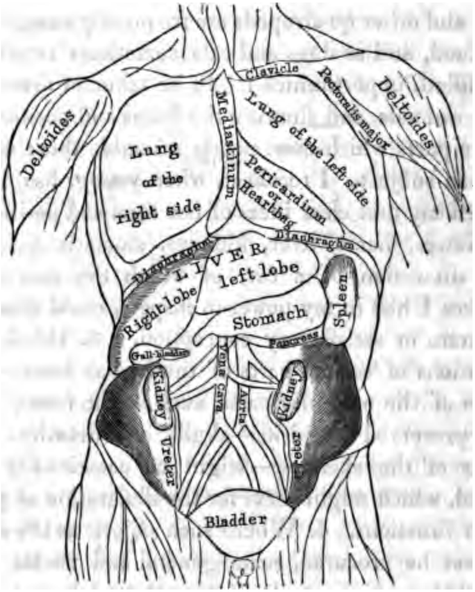


Fig. 4.



longing to figures 3 and 4, is obviously *much less* than that of figures 1 and 2, and consequently, the parts which it embraces must be *unnaturally* compressed, to the injury of symmetry and beauty, as well as to the impeding of the vital functions.

But it will naturally be asked, How shall we find means to communicate a knowledge of physiology in common schools? A thorough knowledge of this subject, such as a regular medical practitioner requires, cannot be communicated in such seminaries, nor would it be necessary, or even expedient, to make the attempt. Human subjects could not be dissected before the eyes of the young, nor would it be proper to accustom them to witness such operations. A *general* knowledge of the parts of the human frame, of their relative positions, and of the functions they perform in the animal system, is all that is requisite to be imparted; and there are several modes by which such a view of the mechanism of the human body may be exhibited. 1. It is well known that the skill of the anatomist, combined with that of the modeller, has enabled him to construct a model or representation of the human system. This model, which has been sometimes called a *mannikin*, or artificial man, is formed with so much skill and ingenuity as to exhibit the principal veins and arteries, the nerves, the muscles, the lungs, liver, stomach, kidneys, and most other parts, nearly as distinctly as they appear in the real human subject. Such a model, could it be procured, would answer all the purposes of *general* instruction. The only valid objection that could be made to its introduction would be, the *expense* with which it would be necessarily attended. 2. An idea of the form and position of those parts connected with the vital functions, which are contained within the *thorax* and *abdomen*, may be obtained by dissecting some of our domestic quadrupeds. Although the mechanism of these animals is somewhat different from that of man, yet the organs contained in the cavity of the breast and abdomen are essentially the same, though differing in some minute particulars—are placed nearly in the same relative positions, and perform the same or similar functions as in the human system. As hares, rabbits, and other quadrupeds are frequently slaughtered for food, and as dogs and cats sometimes require to be killed, opportunities might be taken of dissecting such animals, and showing the forms and positions of those parts which most nearly resemble those of the human subject. I recollect, when young, having received my first clear ideas of the form and position of the lungs, heart, liver, kidneys, stomach, &c. from the dissection of a *cat*, of which the anatomical figures I had in my power to inspect, could afford no accurate or satisfactory conception. 3. Dried preparations of certain parts of the human body—portions of the muscular parts, such as the heart, liver, &c. preserved in spirits—skulls, and detached portions of the skeleton—might be occasionally procured, which might serve for the illustration of particular functions. 4. Where such objects as the above cannot be procured, some general and useful ideas on this subject may be communicated by means of *large coloured anatomical plates*. These are found necessary to accompany every course of anatomical dissection; and, although they cannot convey the same accurate ideas which may be obtained by a direct inspection of the human subject, yet none will deny that a very considerable degree of useful information may in this way be obtained, especially with the assistance of a teacher who can explain, with simplicity and clearness, the several organs and functions of the animal system. Supposing a person knew nothing of the internal parts of the human body, it is evident, that, from such a figure as the following, an idea might be obtained of the relative situations of the lungs, the heart, the diaphragm, the liver, the gall-bladder, the pancreas, the stomach, the kidneys, and various other parts,



ıch more so from a variety of separate figures
ıted on a large scale, and coloured after nature.
would be no necessity for exhibiting or de-
g any other parts or organs but those which
nmon to both sexes, so that there would be no
or objections on the score of indelicacy. The
sex, however, as well as the male, ought to be
ted in this science; for, as females have the
al education of children more immediately under
ontrol, it is of vast importance to the human
large, that they should be endowed with that
dge of the functions of the human frame, which
able them to conduct such education with in-
nce and discretion. There is no department of
, moreover, in which a pious and intelligent
r has a better opportunity of directing the
of his pupils to the *evidences of design*, and of
ting on the wisdom and benevolence of the
r, than when describing the mechanism of the
frame. In the various articulations of the
in the construction of the veinous and arterial
, in the process of respiration, in the circula-
the blood, in the muscular and nervous sys-
in the motion of the heart, in the mechanism
eye and the ear, in the construction of the
the hand, the skull, and other parts of this ad-
e machine, the Divine Wisdom and Benevolence
conspicuous; and, when clearly exhibited to
ung, must impress their minds with the truth
hey are, indeed, "*fearfully and wonderfully*
" and that they ought to consecrate the temple
r bodies for "a habitation of God through the
"

One great practical end which should always be kept in view in the study of physiology is the invigoration and improvement of the corporeal powers and functions, the preservation of health, and the prevention of disease. For this purpose frequent instruction, illustrated by examples, should be imparted in relation to *diet and regimen.* The young should be instructed in the laws of the animal economy, and the sources of diseases; the practices which induce certain disorders, and the means of counteracting them; the functions of the skin, lungs, stomach, and bowels; the nature and importance of insensible perspiration, the means of regulating it, and the evils which flow from its obstruction; the rules which should be observed in bathing and swimming; the importance of pure atmospheric air to the health and vigour of the animal system, the circumstances by which it is deteriorated, and the means by which its purity may be preserved; the necessity of *cleanliness*, in respect to the hands, face, neck, and other parts of the body, and to the clothes, linens, blankets, sheets, and household furniture, and the rules which should be attended to for preserving the person and dwelling from filth and noxious effluvia; the articles most proper for *dress*, and the mode of constructing it so as not to impede the vital functions; the proper use of *food* and *drink*, and especially the moral and physical evils which flow from *intemperance*, and the frequent use of ardent spirits; the *exercise* and *rest* requisite for body and mind, the means by which they may be duly proportioned, and the evils which arise from *immoderate* exertion either of the mental or corporeal powers;* the improvement of the organs of sensation, particularly the organs of vision, and the treatment requisite for preserving them in health and vigour. Instructions on these and similar topics, when occasionally illustrated by striking facts and examples, could scarcely fail to exert a powerful and beneficial influence on the minds of the young, on the families with which they are connected, on society at large, and even on succeeding generations. That such information has never yet been regularly communicated in our schools and seminaries, reflects disgrace on our scholastic arrangements, which are frequently directed to objects of far inferior importance. Till such instructions be generally communicated, in connection with other portions of useful knowledge, man will never rise to the highest dignity of his physical and intellectual nature, nor enjoy the happiness of which he is susceptible even in the present state.

SECTION. XII.—*Logic, or the Art of Reasoning.*

Logic may be defined to be "that art or branch of knowledge which has for its object *the investigation of truth*, and the best method of communicating it to others;" or, in other words, the art of employing our rational faculties in the best manner in searching after truth and duty on any subject. Although all men have essentially the same mental faculties, yet there is a great difference in respect to the *vigour* of these faculties in different individuals, according to the *improvement* they have received, and the objects to which they have been directed. The improvement of the reasoning powers, and the manner in which they have been exercised by the wise and learned in Europe, America, and other parts of the civilized world, have raised them almost as high in the scale of intelligence above the Hottentots, the African negroes, or the inhabitants of New Holland or Nootka Sound, as those savages are superior to the beasts of the forest or the fowls of heaven. The acquisition of truth, in relation to all those subjects which are connected with the present and future happiness of man, is obviously a matter of the highest importance. By the proper application of our reasoning faculty we become acquainted with the properties and relations of the objects around us in this lower world, and the distances, magnitudes, and *real* motions of the celestial bodies, and the purposes for which they appear to have been created. By the same means we acquire a knowledge of the perfections of God, the principles of Natural Religion, the evidences of Divine Revelation, the improvements of art, and the discoveries of science. By the cultivation of reason we discover our duty to God and to our fellow-creatures, either from the light of nature or from the study of Revelation, and learn to distinguish truth from falsehood, and good from evil; and to apply the truths we thus acquire to the direction of our moral conduct, to the promotion of human happiness, and to the invigorating of our hopes of eternal felicity.

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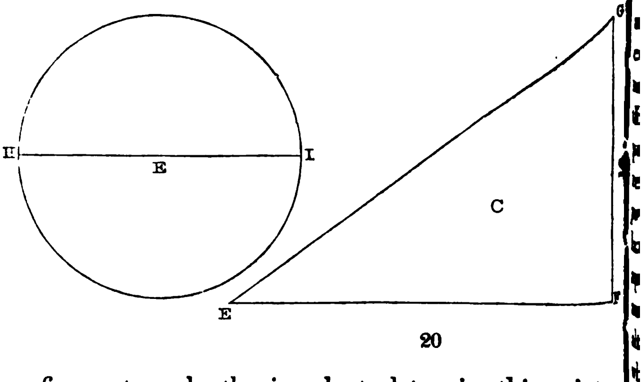
* See Appendix, No. II.

It is therefore a matter of considerable importance, that, at an early period, the reasoning powers of the young be directed, both by precepts and examples, in their inquiries after truth, and guarded from the influence of false principles and fallacious reasonings, by which errors have been propagated, prejudices promoted, truth obscured, and the improvement of the human race prevented.—Were this subject to be illustrated in all its extent, it would be requisite, in the first place, to give a description and analysis of the intellectual powers, which are the means or instruments by which we are to pursue our discovery after truth. In the second place, to exhibit an arrangement and classification of the objects in nature to which these powers are applied. In the third place, to illustrate the most successful method of applying our natural powers in the investigation of truth; and lastly, to explain the best method of communicating the truth to others, when discovered. Under the *first* head, it would be requisite to enter into the discussion of the faculties of sensation and perception, attention, consciousness, memory, conception, abstraction, imagination, judgment, taste, the moral faculty, and other powers; or, according to the phrenological system, the *knowing* and *reflecting* faculties, the moral sentiments, and the animal propensities—which may be considered as so many different modes of the operation of mind. Under the *second*, a brief view might be given of the peculiar characteristics of *mind* and *matter*, and a more particular survey of the sciences, or the knowledge which men have acquired respecting the objects of human thought, which might be arranged under the three following heads:—1. *History*, comprehending sacred, prophetic, and ecclesiastical history; literary history, including the history of philosophy and the arts; civil history, including particular history, general history, memoirs, antiquities, and biography; also, geography and chronology, which have been denominated the *Eyes* of history; *natural* history, including mineralogy, botany, and general zoology, meteorology, geology, and the facts which relate to the heavenly bodies.—2. *Philosophy*, including ontology, the mathematical sciences, pure and mixed; natural and revealed theology; *esthetics*, or the science of our feelings and emotions; ethics, logic, political economy and legislation; natural philosophy, chemistry, physical astronomy, medicine, the physiology of plants, human and comparative anatomy, &c.—3. *Art*, including the *fine* arts, as poetry, oratory, painting, architecture, gardening, &c.; the *liberal* arts, as practical logic, practical geometry, practical chemistry, surgery, &c. and the *mechanical* arts, as dyeing, weaving, clock and watch making, &c. Under the *third* head might be illustrated the different kinds of *evidence*, as the evidence of intellection, of sense, of testimony, of analogy, &c. and the means by which evidence on any subject may be most successfully obtained; which would include a discussion of the modes of reasoning by syllogism, induction, analysis, and synthesis—of the sources of error, and of the *dispositions* and *circumstances* among mankind from which errors and fallacious reasonings arise—a subject which would require to be illustrated with considerable minuteness from the facts of history, and the circumstances which exist in the present state of the human race. Under the *fourth* head might be included—1. A general view of the different means which men have ed for communicating their thoughts to each —2. An explanation of the nature of arbitrary and the principles of universal grammar.—3. ımeration and description of the different qua- f *style*, and the best method of constructing a rse on any subject.

a class of young persons, about the age of or sixteen, a popular illustration of some of ove topics might be attended with many bene- effects, particularly in inducing upon them of reasoning and reflection, and guarding them t the influence of prejudices, and sophistical ents and reasonings. Although it would tly be injudicious and premature to attempt liscussions in primary schools, yet a judicious r, well acquainted with the science of mind ıe nature of evidence, might occasionally illus- certain parts of this subject, particularly in ng the young to reason with propriety on any ır objects or incidents with which they are nted. It may be laid down as an axiom, that *the earliest dawn of reason children should be omed to exercise their reasoning faculty on object to which their attention is directed, and to assign a reason for every opinion they adopt, ery action they perform.* Without troubling with explanations of the various forms and of syllogisms, they may be taught the nature soning, and the force of arguments, by familiar les taken from sensible objects with which are in some measure acquainted. Logicians reasoning to be *that power which enables us, by tervention of intermediate ideas,* to perceive the *relation of two ideas, or their agreement or disagreement.* This might be illustrated to the young by such examples as the following:—Suppose there are two tables, A and B, which cannot be applied to each other, and we wish to know whether A be longer or shorter than B; we endeavour to find an "intermediate idea," or measure, namely, a three-feet rule, and apply it, first to table A, and then to table B. We find that A measures thirty-six inches, coinciding exactly with the three-feet rule, and that B measures only thirty-four inches; therefore, the inference or conclusion, at which we wished to arrive, is evident, that table A is longer than table B. Again, suppose we would know whether the space contained in the triangle C, be equal to, or greater or less than that contained in the circle E; we cannot apply these figures to each other in order to determine this point; we must therefore search for an intermediate idea which will apply to both. We fix on a square—a square foot for example, and from the length of the base, E F, and the perpendicular F G, in the triangle



, we find the number of square feet to be 160. aving the length of the diameter of the circle, H I, find that there are likewise 160 square feet conined within its circumference; and therefore the nclusion is evident, that the space contained within e triangle C is equal to that contained in the circle . This example, reduced to the form of a syllosm, would stand thus: Any two figures which conin the same number of square feet are equal to e another; but the triangle C contains the same umber of square feet as the circle E; therefore the ace contained in the triangle C is equal to the space ntained within the circle E.

Again, the sun appears to be only a few inches in ameter, and as flat as the face of a clock or a plate silver. Suppose it were inquired how we may termine that the sun is much larger than he pears to be, and whether his surface be flat or nvex, or of any other figure,—the pupil may be quested to search for intermediate ideas, by which ese points may be determined. One idea or inciple, which experience proves, requires to be cognised, that *all objects appear less in size, in oportion to their distance from the observer.* A ge building, at the distance of twenty miles, pears to the naked eye only like a visible point; d a dog, a horse, or a man, are, at such a distance, ogether invisible. We find, by experience, that en the sun has just risen above the horizon in the rning, he appears as large as he does when on our ridian at noon-day; but it can be proved, that he then nearly 4000 miles (or the half diameter of e earth) nearer to us than when he arose in the morning; therefore, the sun must be at a great distance from us, at least several thousands of miles, otherwise he would appear much larger in the one case than in the other, just as a house or a town appears much larger when we approach within a mile of it than it does at the distance of eight or ten miles. It is known that the inhabitants of Great Britain, and those who live about the Cape of Good Hope, can see the sun at the same moment; and that he appears no larger to the one than to the other, though they are distant in a straight line more than 5000 miles from each other. We also know, from experience, that when we remove 50 or a 100 miles to the west of our usual place of residence, the sun appears, at his rising, just as large as he did before; and though we are removed from our friends several hundreds or even thousands of miles, they will tell us that the sun uniformly appears of the same size, at the same moment, as he does to us. From these and similar considerations, it appears, that the sun must be at a very considerable distance from the earth, and consequently his *real* magnitude must be much greater than his apparent, since all bodies appear less in size in proportion to their distance. If the distance of the sun were only 4000 miles from the earth, he would appear *twice* as large when he came to the meridian, as he did at his rising in the east; if his distance were only 100,000 miles, he would appear $\frac{1}{25}$ part broader when on the meridian than at his rising—but this is not found to be the case; consequently, the sun is *more* than 100,000 miles distant, and therefore must be of a very large size. Supposing him no farther distant than

100,000 miles, he behoved to be nearly a thousand miles in diameter, or about the size of Arabia or the United States of America.

To determine whether the sun be *flat or convex*, we must call in to our assistance the following ideas. *Every round body which revolves around an axis, perpendicular to the line of vision, without altering its figure or apparent dimensions, is of a convex or globular shape;*—and, *Every object which appears of a circular shape near the centre of such a body, will assume an oval or elliptical form when it approaches near its margin.* This might be illustrated by fixing a circular patch on a terrestrial globe, and turning it round till it appear near the margin. By means of the telescope, it is found that there are occasionally spots upon the sun, which appear first at the eastern limb, and, in the course of about 13 days, approach the western limb, where they disappear, and, in the course of another 13 days, reappear on the eastern limb; which shows that the sun revolves round an axis without altering his shape. It is also observed that a spot, which appears nearly circular at his centre, presents an oval figure when near his margin. Consequently, the sun is not a flat surface, as he appears at first sight, but a globular body.—Again, suppose it was required to determine whether the sun or the moon be nearest the earth. The intermediate idea which requires to be recognised in this case is the following. *Every body which throws a shadow on another is nearer the body on which the shadow falls than the luminous body which is the cause of the shadow.* In an eclipse of the sun, the body of the moon projects a shadow upon the earth, by which either the whole or a portion of the sun's body is hid from our view. Consequently, the moon is interposed between us and the sun, and therefore is nearer to the earth than that luminary. This might be illustrated to the young by a candle, and two balls, the one representing the moon and the other the earth, placed in a direct line from the candle.—In like manner, were it required, when the moon is eclipsed, to ascertain whether at that time the earth or the moon be nearest to the sun, it might be determined by the same process of reasoning; and, on the same principle, it is determined that the planets Mercury and Venus, when they transit the sun's disk, are, in that part of their orbits, nearer the earth than the sun is.

Such reasonings as the above might be familiarly explained, and, in some cases, illustrated by experiments; and the pupil occasionally requested to put the arguments into the form of a syllogism. The reasoning respecting the bulk of the sun may be put into the following syllogistic form:—

All objects appear diminished in size in proportion to their distances.

The sun is proved to be many thousands of miles distant, and, consequently, diminished in apparent size.

Therefore the sun is much larger in reality than what he appears.

The two first propositions are generally denominated the *premises.* The first is called the *major* proposition, the second the *minor* proposition. If the major proposition be doubtful, it requires to be proved by separate arguments or considerations. In the above example, it may be proved, or rather illustrated, to the young, by experiment—such as placing a 12-inch globe, or any similar body, at the distance of half a mile, when it will appear reduced almost to a point. If the *minor*, or second proposition be doubtful, it must likewise be proved, by such considerations as suggested above; or by a strictly mathematical demonstration, if the pupils are capable of understanding it. But, in the present case, the arguments above stated are quite sufficient to prove the point intended. When the premises are clearly proved, the conclusion follows as a matter of course. Similar examples of reasoning may be multiplied to an almost indefinite extent, and, in the exercise of instructing the young, they should always be taken from *sensible objects* with which they are acquainted.

As it would be quite preposterous to attempt instructing young persons, under the age of twelve or thirteen, in the abstract systems of logic generally taught in our universities—it is quite sufficient for all the practical purposes of human life and of science, that they be daily accustomed to employ their reasoning powers on the various physical, intellectual, and moral objects and circumstances which may be presented before them; and an enlightened and judicious teacher will seldom be at a loss to direct their attention to exercises of this kind. The objects of nature around them, the processes of art, the circumstances and exercises connected with their scholastic instruction, their games and amusements, the manner in which they conduct themselves towards each other, their practices in the streets or on the highways, and the general tenor of their moral conduct, will never fail to supply topics for the exercise of their rational faculties, and for the improvement of their moral powers. In particular, they should be accustomed, on all occasions, *to assign a reason for every fact they admit, and every truth they profess to believe.* If, for example, they assert, on the ground of what they read in books, or on the authority of their teachers, that "the earth is round like an artificial globe," they should be required to bring forward the proofs by which this position is supported, so that their knowledge may be the result, not of authority, but of conviction. In like manner, when they profess to believe that the earth moves round its axis and round the sun—that the atmosphere presses with a weight of fifteen pounds on every square inch of the earth's surface—that a magnet will stand in a direction nearly north and south—that water presses upwards as well as downwards—that it is our duty and interest to obey the laws of God—that we ought to exercise justice between man and man—and that children should obey their parents and teachers,—they should be taught to bring forward, when required, those experiments, arguments, and reasonings, by which such truths are proved and supported.

As an illustration of some of the modes of reasoning to which I allude, the following story respecting the celebrated French philosopher, *Gassendi*, may be here introduced. From his earliest years he was particularly attentive to all that he heard in conversation, and was fond of contemplating the scenes of nature, particularly the magnificence of a starry sky. When only seven years old, he felt a secret charm in the contemplation of the stars, and, without the knowledge of his parents, he sacrificed his sleep to is pleasure. One evening a dispute arose between im and his young companions, about the motion of e moon, and that of the clouds when they happened be impelled by a brisk wind. His friends insisted at the clouds were still, and that it was the moon hich moved. He maintained, on the contrary, at the moon had no *sensible* motion, such as they agined, and that it was the clouds which appeared pass so swiftly. His reasons produced no effect

Gassendi demonstrating the motion of the clouds.

on the minds of the children, who trusted to their own eyes rather than to any thing that could be said on the subject. It was, therefore, necessary to undeceive them by means of their eyes. For this purpose Gassendi took them under a tree, and made them observe that the moon still appeared between the same leaves and branches, while the clouds sailed far away out of sight. This exhibition, of course, was convincing, and at once settled the dispute.

The principle, or "intermediate idea," which Gassendi recognised, in this case, for proving his position, was the following, although he could not perhaps at that time express it in words:—*When motion appears in the case of two bodies, we ascertain which is the moving body, by causing one of them to appear in a straight line with an object which is known to be fixed.* This principle is of considerable practical utility. By means of it we ascertain, when we see a number of ships in a river, or narrow arm of the sea, which of them are in motion or at rest, by comparing their positions or motions with a fixed point on the opposite shore. When looking at the wheels, pinions, and other parts of a piece of machinery, we can, on the same principle, perceive which parts are in motion and which are at rest, which the eye at first view cannot determine; and, in the same way, the real and apparent motions of the planets in the heavens are ascertained, by comparing them with the position of the stars, which may be regarded as so many fixed points for directing the astronomer in his investigations. The principle above stated, therefore, was the *major* proposition in Gassendi's reasoning, and the *minor* proposition was the llowing:—"When we bring a tree, which is a fixed bject, in a direct line between our eye and the oon, she appears for a few seconds to have no sen- ble motion, while the clouds have passed away." herefore the conclusion follows, that "the motion hich was the subject of dispute was not in the moon, ut in the clouds."

Subjects might occasionally be prescribed in hools, for the purpose of exercising the reasoning owers of the young, and proving the truth of cer- ain positions. Suppose it were proposed as an xercise, *to prove that air exists, although it cannot e seen*,—a certain time might be allowed for every ne to think and to converse on the subject, when some ne or other of the following proofs, though in dif- erent words, would probably be stated. 1. Take a od, and make it pass rapidly through what appears mpty space, and you will hear a sound and feel a light resistance. 2. Take a large fan or umbrella, nd push it forcibly from you, and you will feel a onsiderable resistance, and hear a sound, and a per- on opposite will feel a certain impression made on his face. 3. Take a *very large* umbrella, and stand on the top of a stair or building 15 or 20 feet high, and you may jump from such a position while holding it stretched, *and gradually* descend to the ground without injury. 4. Plunge a glass jar into a vessel of water, with its mouth downwards, and only a very small quantity of water will enter the glass, which shows that there is something in the glass which excludes the water; and this is the reason why we cannot fill a vessel with water by plunging its orifice downwards. 5. Take a smooth cylindrical tube, shut at one end, and fit a plug exactly to its open end, and no force whatever can push it to the bottom of the tube, which shows that there is some invisible substance that prevents it. 6. Open a pair of common bellows, and shut up the nozle and valve-hole, and it will be impossible to bring the boards together, in consequence of the resistance of an invisible substance within. 7. Take a telescope, of a high magnifying power, and look through it to distant objects, in the forenoon of a hot summer-day, and you will see the air undulating about the objects like the waves of the sea. All which circumstances show that there is *a material*, though invisible substance around us, which *resists a force*, *produces a sound*, *excludes other bodies* from occupying the same space, and whose *undulations*, in certain circumstances, may be rendered *visible*.

Again, suppose it were required to prove the following position, that "it is highly expedient that the whole community should enjoy the benefits of an intellectual and religious education," such arguments as the following might be brought forward. 1. Such an education invigorates the faculties and enlarges the capacity of the mind. 2. It presents to the view objects of delightful contemplation, which exercise the rational powers, and contribute to the happiness of the individual. 3. It prepares the young for acting an honourable and upright part in society. 4. It qualifies them for the several professions in which they may afterwards be employed. 5 It tends to undermine foolish and superstitious notions, and to prevent diseases and fatal accidents. 6. It prepares the mind for a rational contemplation

works of God, and of his perfections as therein
ed. 7. It fits them for taking a part in the
e franchise of their country. 8. It prepares
for understanding the Scriptures, and for re-
profit by their attendance on the ordinances
gion. 9. It qualifies them for advancing the
of useful knowledge, and for promoting the
ation and improvement of their species. 10.
ls to the prevention of intemperance, tumults,
and all those vices and evils which result from
nce; and leads to the practice of the Christian
. 11. It prepares the soul for the employments
e felicity of the heavenly world, &c.—Again,
e the question, "Is it the duty and interest
men to love one another?" to be given as an
e of thought and reasoning. Independently
positive command of God in relation to this
uch considerations and arguments as the fol-
might be brought forward. Men ought to
ne another—1. Because they are all brethren
same family, descended from the same original
nd formed by the same Almighty Parent. 2.
are possessed of the same bodily organization,
e same moral and intellectual powers. 3. They
bject to the same wants and afflictions, and
tible of the same pleasures and enjoyments.
ey inhabit the same world, and breathe the
tmosphere. 5. They are dependent upon each
for their comforts, and connected by numerous
d relations. 6. To all of them God distributes
unty, without respect of persons, causing his
cheer and enlighten them, and his rains to
d and fructify their fields. 7. They are all

animated with *immortal* spirits, and destined to an eternal existence. 8. The exercise of kindness and affection would unite, in one harmonious society, men of all nations, and diffuse happiness through the heart of every human being. 9. It would promote the universal practice of equity and justice between man and man, and prevent all those litigations, contentions, and animosities, which have so long disturbed and demoralized the world. 10. It would "turn wars into peace to the ends of the earth," and promote a delightful intercourse between all the kindreds and tribes of human beings, wherever dispersed over the surface of the globe, &c.

In prescribing such exercises as the above, the teacher would require, in the first instance, to suggest some of the leading arguments, in order that the pupils may perceive the nature of the mental process in which they are called to engage; and when they had leisure to think on the subject, some of them would doubtless bring forward some proofs or considerations of their own, though perhaps expressed in homely language. At any rate, an exercise of this kind, prescribed once or twice every week, could scarcely fail to sharpen the faculties of the young, to induce habits of rational thinking, and to promote both their moral and intellectual improvement.

It would likewise be of considerable utility to set before them *the springs of false judgment*, or the sources of error—the false conclusions which arise from *prejudices*, or preconceived opinions—the nature of *sophistical reasonings*, and the means of guarding against their influence. The following are *specimens* of the prejudices to which I allude:—1. *We are apt to* *judge of persons or things merely from their external appearance.* A picture of no value, daubed with bright and glaring colours, is frequently admired by the vulgar eye; and a worthless book, splendidly printed and adorned with flashy engravings and elegant binding, is prized and extolled by a superficial thinker. From such a prejudice we are apt to conclude that a man is happy who is encircled with wealth and splendour, and that he who is covered with coarse or ragged garments has neither knowledge nor comfort, and is unworthy of our regard. Hence the Jews rejected the Saviour of the world, and the Corinthians despised the Apostle Paul.—2. Another prejudice arises from *not viewing an object on all sides—not considering all the circumstances connected with it, and not comparing all the aspects in which it may be contemplated.* Thus, when we view a *cone* placed at a great distance from the eye, we are apt to imagine it a plain *triangle;* and if its base were placed at right angles to the line of vision, we should conclude that it was nothing else but a plain *circle.* Thus, a round plate, when placed obliquely at a considerable distance from the eye, appears as an *oval;* and with its edge turned towards us, as a *line.* Thus, the sun and moon, though globular bodies, appear *flat* to the naked eye. Thus, the rings of Saturn appear sometimes like *narrow,* and sometimes like *broad ellipses,* sometimes like *straight lines,* and sometimes like a *narrow shade;* so that a comparison of all these different aspects was necessary before it could be inferred that these singular phenomena were in reality *rings.* Hence, at their first discovery by the telescope, they were considered as two small globes attached to the planet.—3. Another source of error arises from *the impressions made on the mind in infancy*, and from *not comparing the intimations given by one sense with those of another.* Children are apt to imagine that *books* are unpleasant things, and that learning and religion are drudgeries, when they have been driven to such tasks by the force of the scourge. They imagine the sky touches the distant hills, and that the stars are not risen till the sun be set. From this source we are apt to conclude that the air has no weight, because we do not feel its pressure; that the earth is at rest, because we do not feel its motion; that the planets and stars are only a few miles distant; and that a vessel at anchor is in motion when we pass her swiftly, when sailing in a steam-boat.—4. *Our disposition to account for every thing on one or two principles.* To this cause may be ascribed the disposition of some late philosophers to account for almost every phenomenon on the principle of *electricity.* Having traced its agency in producing thunder and lightning, they went so far as to attribute to its sole operation the phenomena of earthquakes, volcanoes, winds, rain, and even the various fluctuations of the animal spirits. To form a world, Epicurus required only a mass of hooked atoms moving in a certain manner; and Des Cartes, from observing that light bodies were moved round in a whirlwind, formed the idea of an immense vortex, or whirlpool, in the heavens, to account for the motion of the planets round the sun.

5. *The passions and affections lead to numerous sources of error.* Love induces a mother to think her own child the fairest and the best. Intense

e and desire make a few days as long as so many
eks. The fear of the torture, of the galleys, or
a painful death, has induced multitudes to believe
grossest absurdities of the Romish church. Envy
represents the condition and character of our
ghbour, and makes us believe that he is much
rse than he really is. Above all, *self-interest* in-
ces many to swallow almost any opinion, and to
dicate every practice, however corrupt and absurd.
nce the most glaring abuses in church and state
e been vindicated, in the most barefaced manner,
those who derive their emoluments from a system
corruption. It is from a spirit of selfishness, too,
t we set up our own opinions in religion and
ilosophy as the tests of orthodoxy and truth ; and
m the same principle has arisen the antichristian
ctice of *persecution*—a practice as unreasonable as
t of the tyrant, who, having a bed exactly fitted
his own size, stretched men of low stature on the
k till they were drawn out to the length of his
d, and cut a portion of the legs off any one whom
found too long for it. Who ever had recourse
violence and torture to prove the truths of *geo-*
try?—6. *Our disposition to rely on the authority*
others. We are apt, without sufficient inquiry,
rely on every thing we have been taught by our
rents and teachers. An author of great respecta-
ity frequently drags thousands into mistakes and
oneous theories, merely by the splendour and au-
rity of his name. For more than a thousand
ars the philosophers and divines of Europe were
into many egregious errors by a reliance on the
thority of *Aristotle ;* a quotation from his writings

was considered as a proof of any position, and useful discoveries were long rejected because they did not quadrate with the opinions of the Grecian philosopher. Luther, Calvin, and Knox were pious men and eminent reformers, and their peculiar opinions are not unfrequently imbibed by their followers, merely on the authority of their names. This is an error into which those are apt to fall who never apply their powers to rational investigations, and who are too indolent to think for themselves.

The above and similar sources of error might be illustrated to the young by numerous examples and circumstances; and rules and cautions given by which they might be enabled to guard against their pernicious influence in the sciences, in religion, in politics, and in the ordinary affairs of life. A brief view might likewise be given of the doctrine of *Sophisms*, and the means by which they may be detected; of which the following are specimens :—1. *Accounting for a phenomenon or fact by assigning a false cause*, or taking an *accidental* conjunction of things for a *necessary connection.* We fall into this error, when from an *accident* we infer a *property*, when from an *example* we infer a *rule*, when from a *single act* we infer a *habit.* Astrologers commit this error when they deduce the cause of the various events in the lives of men from the different aspects of the stars and planets. We reason on this sophism, when we construe the appearance of a comet or an eclipse of the sun as predicting the fate of princes, the revolution of nations, or the infliction of pestilence or famine; or when it rains at the new or full moon, and we infer that the moon is the cause

or when a person is in misery or distress, and
clude that he must needs be a heinous sinner.
Vhen we draw a conclusion from a premise
is only true by accident. We fall into this
hen we reason against any thing because of
ong use which has been made of it; as when
son against printing, because it has sometimes
mployed for raising sedition and promoting im-
y; against reading the Bible, because it has
nes led to heresy; against Christianity, because
een the accidental occasion of contentions and
tions, which do not flow from the Gospel, but
re *accidental circumstances*, with which it has
metimes attended. Other sophisms are such
following: Mistaking the question or point to
ved—the *Petitio Principii*, or begging the
n—imperfect enumeration—reasoning in a
-concluding from what is true of a thing in
ded state, as if it were true in its compound
-ambiguity of words, and using them in dif-
senses—with several others.

ll the species of false reasonings, there is none
ommon than that of introducing into an argu-
ropositions that are either false or doubtful,
ng for granted facts which have never been
torily ascertained. In this way a false con-
may be *legitimately* deduced, after such facts
ositions are admitted. Against this fallacious
f reasoning the young should be carefully
d, both in their own reasonings, and when
g to those of others; and habituated to scan
roposition or assertion, and ascertain its truth
admitting it into any chain of argument. In

the speeches that were lately delivered in parliament in opposition to the Reform Bill, this species of reasoning was one distinguishing characteristic, when those orations had any show of argument. Fictions were brought forward as facts, vague and unfounded assertions were uttered with all the pomp of confidence and authority, and the idea of *revolution*, in its most horrid aspects, was substituted in place of *salutary reformation*, so that the haranguer would have required to have been stopped at almost every other sentence, till he had substantiated the truth of his premises. Such, however, is not unfrequently the way in which our representatives in parliament, the members of our corporations, and vast assemblages of our citizens at public meetings, are hurried along by a bold and impudent declaimer, and induced to *cheer* the sophister who is leading them on to the admission of a falsehood, and to the approbation of measures subversive of human improvement.

It is therefore of vast importance to society, that the young be early trained to the proper use of their rational faculties—that they be accustomed *to entertain clear and well-defined ideas* on every subject—that they be enabled to appreciate the strength or weakness of arguments—that they feel the importance of prosecuting *truth* and *duty* in every department of learning—and that frequent exercises on important subjects be prescribed for stimulating their reasoning powers. It is lamentable to reflect on the deficiency and weakness of the great mass of mankind in this respect. On the most trifling grounds they will yield their assent to hundreds of propositions, most of which they do not understand. They will obstitely adhere to their preconceived opinions in the ce of the strongest and most convincing arguments. hey will swallow, without the least hesitation, the ost absurd and extravagant notions; while all the asonings we can bring forward will not convince em of the reality of truths and facts which have en clearly demonstrated. So wedded are they to e opinions they had first imbibed, that we might most as soon attempt to teach a snail or a tortoise e truths of geometry as convince them that the rth turns round its axis, and that it is possible to etermine the exact distance of the moon; while, at e same time, they will talk, with the utmost assurnce, of the most abstruse mysteries which lie beyond he reach of the human understanding. This repreentation does not apply merely to the lower, but ven to many in the higher ranks of society; and uch a state of things has been productive of many njurious effects, in relation to the best interests of nankind. It has been the cause of most of the wars nd commotions which have desolated the earth, and f the prevalence of those systems of tyranny, slavery, nd injustice which still so generally prevail. It has ed to all the persecutions that have ever disgraced he church or the world. It has produced hundreds f foolish controversies in the visible church, either ith respect to comparatively trifling opinions, or to hose subjects which lie beyond the grasp of the aculties of man; and has dissevered Christian society nto a number of discordant sectaries. It has preented the improvement and happiness of the human ace, and is the cause of all the ignorance, prejudices, ntemperance, and vice, which appear among all ranks of society; for if men were to cultivate their intellectual powers aright, and apply them to rational purposes, few or none of these evils would abound in the world.

But it is deeply to be regretted, that in all ages, and even in the present age, legitimate reasoning has been for the most part thrown aside, and diabolical arguments substituted in its stead. When men have been unable to confute their antagonists by the force of arguments, they have had recourse to "club law," and have knocked down their opponents and all their reasonings, by the application of guns and bayonets, and every species of *physical* force. Louis XIV. of France, like most of his compeers, was so convinced of the strength of this mode of reasoning, that he engraved upon his great guns the following inscription: "*Ratio ultima Regum*," that is, the *Logic* of princes—or, the *last argument* of kings. In this mode of arguing, fifty thousand disputers are frequently arranged on each side of a question, and that party which can handle their swords and muskets with most dexterity, and blow the skulls and limbs of their antagonists to atoms, and slash their bodies to pieces, are always reckoned, by their leaders, *the most expert logicians.* There is another mode of reasoning which has been frequently used with disputants, and that is, *arguing by torture*, in which the argument is sometimes screwed up to such a pitch as to make the refractory disputant confess his belief in any proposition, however wild and extravagant. A mode of arguing nearly akin to this is the application of whips, sabres, gibbets, dungeons, musket-balls, fire and faggots. In this ay the Romish Church reasoned with the Hussites nd the Waldenses; and with the same weapons onfuted every Protestant who dared to call in question the infallibility and the supreme authority of he Roman Pontiff. In this way Queen Mary nd her bishops argued with 277 clergymen, gentlemen, tradesmen, and women, when, for adhering to Protestant doctrines, they were delivered over to be levoured by the fires of Smithfield. It was in the ame way that Claverhouse and his "bloody bands" easoned with the Scottish Covenanters, when he unted them across moors and mosses, and massacred hem in cold blood; and that the Star Chamber easoned with the Non-conformists of England, when ll their arguments were confuted by fines, racks, nd imprisonment. It is in this way that Nicholas f Russia has argued with the brave Poles, when indicating their liberties—when he sent them chained, ike wild beasts, to wander along frightful deserts, nd to perish in the forests of Siberia; and in the same ay do all *mobs* reason, when they furiously demolish he houses, the manufactories, or the churches of heir opponents. On the same principles do those nen reason, who deprive their fellow-citizens of the ight of being eligible to certain civil offices, and ttempt to degrade them in the eyes of the public, ecause they nobly assume the right to think for hemselves, and to worship God according to their onsciences.—But, of all the arguments which have een tried, to produce conviction, there is none more owerful than the influence of *gold*. This is an rgument of so much force and efficacy, that none ut a few stubborn minds have been capable of resisting it. It is possessed of the most wonderful properties—in a moment it enlightens the understanding, wins the affections, removes every doubt, silences every objection, clears up every difficulty, banishes every scruple, and generally causes the most sturdy logician to give up his point, and bend to its power. In short, it is an *intermediate idea*, or major proposition, which will lead to almost any conclusion. By this argument the wisdom of the wise, and the understanding of the prudent, have been more quickly and effectually refuted than by all the wisdom of Solomon, or by all the reasonings of philosophy; and its powerful effects are to be seen in our own land, and in every nation under heaven.

Such have been the modes of reasoning which have most generally prevailed in the world. O! foolish and infatuated reasoners! Is it not high time to undermine your logical principles and systems, to build on a new foundation, and to train the rising generation in such a manner, that they may employ their mental powers in accordance with the dictates of reason and the word of God?

SECTION XIII.—*Natural Theology.*

Natural Theology is that branch of knowledge which proves and illustrates the attributes of the Deity from the works of nature—a study which is open to all the inhabitants of the earth, and from which they may derive impressive views of the existence, the perfections, and the incessant agency of that Great Being who made and who governs the universe. "For, the invisible things of God, even

His eternal Power and Divinity, are, when duly at-
nded to, clearly seen by the things that are made,"
nd have been so in all ages, "from the creation of
e world;" so that, "even the heathen nations
e without excuse," if they neglect to trace in those
orks the being and attributes of their Creator, and
fuse that tribute of reverence and obedience which
due to His perfections. This is a study in which
e young should be early initiated. It lies at the
undation of the religion of the Bible; for the in-
ired writers take for granted that we know the evi-
ences of the existence of the Divine Being, and of
me of the attributes with which he is invested,
nd direct us to the contemplation of the works of
is hands, as proofs and illustrations of the truths
hey unfold. "Lift up thine eyes on high, and
ehold Him who hath created these orbs: stand still,
nd consider the wondrous works of God. Great
is the Lord, and of great power; His understanding
is infinite. His works are manifold, and in wisdom
He hath made them all." In exhibiting the works
of God to the young, in performing experiments to
illustrate their properties, and in describing the laws
nd mechanism of the material world, every opportu-
nity should be taken of directing them to the dis-
lays of power, benevolence, wisdom, and intelligence,
which these works exhibit. It should be deeply
mpressed upon their minds, that it is the highest
nd noblest end of science, to mark the evidences of
ise and benevolent design, and to trace the incessant
gency of our Creator in all our surveys and investi-
ations of the works of creation—without an attention

to which, the mere knowledge of natural facts is an acquisition of a comparatively trivial nature.

An intelligent teacher can seldom be at a loss to direct the attention of his pupils to this subject; for there is no part of the scenery of nature in which a discerning eye will not perceive the most evident traces of benevolent design and infinite intelligence, not only in the exquisite mechanism of animated beings, but in the structure of vegetables and minerals, and the general arrangement of the earth, the waters, and the atmosphere. The adaptation of the solid parts of the globe for the habitation of man and other terrestrial animals—the adaptation of the waters of the ocean and of the rivers to the purposes of commerce, and for the abode of countless multitudes of organized beings—the colouring thrown over the canopy of heaven, and over the landscape of the earth—the process of evaporation, and the innumerable benefits it confers—the agency of the atmosphere, the wonderful properties of its component parts, and its extensive influence in the animal and vegetable kingdoms—the solar light, and the infinity of beautiful effects it produces—the thousands of diversified objects which delight the eye in the natural embellishments of creation—the harmony and order, the grandeur and sublimity, of the celestial motions—the arrangements of the planetary system, and the provision made for securing its perpetuity—the relation of man to the agencies of external nature, as the action of water, air, light, heat, electricity, &c.—the *proportion* between the body of man, and the objects and living beings around him—the mutual relations which subsist between animals and egetables, and their co-operation in promoting the me design—the adaptation of almost every vege- ible to the support of some species of animals—the ower of vegetables to reproduce and continue their ecies, and the *variety* of admirable means by which is effected—the various methods employed to dis- erse the seeds of plants over the surface of the globe, id to adorn it with vegetable beauties—the adapta- on of plants to the different climates, and to the ecessities of their respective inhabitants—the ad- irable structure of their seeds, roots, leaves, and p-vessels, particularly as discovered by the micro- ope in transverse sections of plants, &c.—their nportant uses in the system of nature, and the nu- erous beauties and varieties which they spread over e face of our terrestrial creation; particularly, the urious and admirable mechanism displayed in the onstruction of animated beings, from the micro- copic animalcula, ten hundred thousand times less han a visible point, to the elephant and the whale— he organs of mastication, deglutition, digestion, and ecretion, all differently contrived, according to the tructure of the animal and the aliments on which it eeds—the eyes of insects, and the thousands of ransparent globules of which they consist—the me- amorphoses of caterpillars and other insects, and the eculiar organization adapted to each state of their existence—the numerous beauties and minute adap- ations in the wings, feet, probosces, and feathers, of gnats and other insects—the respiratory apparatus of ishes, and the nice adaptation of their bodies to the atery fluid in which they pass their existence—the onstruction of birds, their pointed bills to penetrate

the air, their flexible tails serving as rudders
lightness, strength, and tenacity of their fea
and the whole structure of their bodies adapted
air in which they fly, and the food by which
are sustained—above all, the wonders of the h
frame, the numerous parts of which it is comp
the hundreds of bones and muscles, the thousa
veins, arteries, glands, nerves, and lymphatic
millions of scales and pores in the skin, the
with its ventricles and auricles, the brain wi
infinity of fibres, the lungs with their millio
vesicles, the organs of sense, with their multifi
adaptations and connections, and the harmo
movements, adjustments, and adaptations of all
parts to the system of external nature and to th
motion of the happiness of man,—these, and
sands of similar objects, adaptations, and contriva
will afford ample scope for expatiating on the P
Wisdom, and Intelligence, of the Almighty Cr
and on the Benevolent contrivances which a
throughout every part of the universal system ;
were specimens of some of the objects now al
to exhibited to the young, it could not fail of a
ing their attention, and inspiring them with ad
tion of the wonderful works of God.

We have comparatively few books on
subject. Derham's "Physico-Theology,"
"Wisdom of God in the Creation," Nieuwe
"Religious Philosopher," Paley's "Natural T
logy," Lesser's "Insecto-Theology," and se
other works, contain a number of valuable fragm
illustrative of the being and perfections of God
the works of Nature. But we have no comple

rehensive system of Natural Theology; and rorks now alluded to, however valuable and y of being perused, are not adapted to the ities of the young. We require a compreve compend on this subject, for the use of ls, in which the descriptions and reflections d be as much as possible divested of the technis of science, and which should be illustrated numerous engravings. The best treatise of ind I have yet seen, is "The Youth's book of ral Theology," by the Rev. T. H. Gallaudet, published at Hartford, Connecticut. This work r and explicit in its descriptions, and, for the part, level to the comprehension of the juvenile But its illustrations are chiefly confined to uman body and the parts and functions of ani- It is thrown into the form of Dialogues, has a tendency to render it interesting for the e perusal of the young; but a work on this is not so well adapted to serve the purpose of -book for public seminaries.* By means of ctions on this subject, the young would be red for the study of *Christian Theology*, and be qualified to appreciate the beauty and suy of those descriptions, given by the inspired s, of the agency of God in the economy of

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e reader is respectfully referred, for some illustrations of bject, to "The Christian Philosopher," particularly to rs i. ii. and iv. and to the author's volume "On the Imient of Society," &c. Section vi. "On the Influence of edge in Promoting Enlarged Conceptions of the Attributes Deity."

Having enlarged to a greater extent than I originally intended on the preceding departments of knowledge, I shall do little more than barely mention several other branches which should occasionally form the subject of instruction in all our schools. These are such as the following:—*Natural History*, including not only a description of animals, but likewise of the most interesting facts connected with the earth, the waters, and the atmosphere; such as earthquakes, volcanoes, ice-islands, caverns, cataracts, natural bridges, glaciers, boiling springs, the phenomena of thunder, lightning, aurora-borealis, parhelia, luminous arches, fiery meteors, whirlwinds, waterspouts, &c. The objects connected with natural history should be among the first that are presented to the view of the young, and they should be introduced as subjects of attention throughout every period of their subsequent education, as they form the groundwork of our physical knowledge and investigations.—*Botany* is another pleasing subject on which sketches might be occasionally given, and which might be illustrated by the shrubs and flowers connected with the garden belonging to the seminary, formerly described. Microscopic views of the seeds and farina of flowers, the vessels and ramifications of the small leaves of minute plants and flowers, the prickles on the leaves of nettles and other shrubs, transverse sections of plants, displaying the beautiful arrangement of the sap-vessels, and similar objects, should be exhibited, and the attention directed to the fine polishings, the numerous minute vessels compressed into the smallest space, and the other exquisite pieces of Divine workmanship connected ith the process of vegetation.—*Mineralogy* is anher department of nature, on which a few instrucons might be given, wherever there are *specimens* illustrate the descriptions. But descriptions of etals or minerals, without presenting to view the etallic substances described, will be of little avail. -Sketches of *Political Economy*, illustrating the rinciples of commerce and manufactures, and other pics connected with this subject, might be given to e advanced pupils, as soon as they are able to enter to the spirit of such disquisitions. In such sketches, oble and liberal views should be inculcated; the lfishness and antipathies of nations, and the inconeniences and absurdities of those restrictions which ne nation imposes upon another, should be strongly probated; and a spirit of good-will and generosity nforced towards other nations and communities, condered as members of the same great family to which e all belong. In connection with this subject, they hould be taught something of the civil and criminal ws of their country, of the duties of magistrates, nd of their own duties as subjects; of the form of overnment under which they live, and of their social ights and privileges. Of no less importance to all lasses, particularly to the lower, are instructions on *omestic Economy*—including directions and rules especting orderliness and cleanliness in dwellings—he best modes of cooking victuals—the proper ursing and management of children—the rearing nd treatment of domestic animals—the economy of ees—the cultivation of gardens, and the best mode f rearing culinary vegetables—the decoration of heir houses, *areas,* and flower-plots, and whatever else has a tendency to promote health and comfort, especially among the working classes of society. In short, instructions in *Vocal Music* should be occasionally interspersed with the other scholastic exercises, and church tunes and airs, adapted to some beautiful or sublime pieces of poetry, might be sung, at convenient seasons, in unison, by all the pupils. The words adapted to the different airs should be calculated to convey instruction, and to raise the soul to some interesting or sublime objects. All such vulgar and debasing ideas as are generally interwoven in our popular songs, and which are little else than a compound of sensuality and selfishness, should be carefully discarded. A good organ or other musical instrument might be used for leading the vocal strains. Music, both vocal and instrumental, has long been too frequently prostituted to the most worthless purposes; it is now high time that it should be consecrated to moral objects, and to the celebration of the perfections and the works of the Most High.

In addition to the mental exercises now alluded to, pupils of every description should be daily employed in *bodily* exercises, for invigorating their health and corporeal powers. Every school should have a play-ground for this purpose, as extensive as possible, and furnished with gymnastic apparatus for exercising the muscular activities of the young of both sexes. Swings, poles, hoops, see-saws, pulleys, balls, and similar articles, should be furnished for enabling them to engage with spirit and vigour in their amusements. In walking, running, skipping, leaping in height, length, or depth, swinging, lifting, *carrying*, jumping with a hoop or a pole, they will not only find sources of enjoyment—when these exercises are properly regulated to prevent danger and contention,—but will also strengthen and develop their corporeal energies, and invigorate their mental powers. All imitations, however, of war and military manœuvres should be generally prohibited; as it is now more than time that a martial spirit should be counteracted, and checked in the very bud,—and those who encourage it in the young need not wonder if they shall, ere long, behold many of them rising up to be curses instead of benefactors to mankind.—They might, likewise, be occasionally employed in making excursions, in company with their teacher, either along the sea-shore, the banks of a river, or to the top of a hill, for the purpose of surveying the scenes of nature or art, and searching for minerals, plants, flowers, or insects, to augment the school museum, and to serve as subjects for instruction. If every school had a piece of ground attached to it for a garden, and for the cultivation of fruit-trees, potatoes, cabbages, and other culinary vegetables, children of both sexes, at certain hours, might be set to dig, to hoe, to prune, to plant, to sow, to arrange the beds of flowers, and to keep every portion of the plot in neatness and order. Such exercises would not only be healthful and exhilarating, but might be of great utility to them in after life, when they come to have the sole management of their domestic affairs. They might also be encouraged to employ some of their leisure hours in the construction of such *mechanical* contrivances and devices as are most congenial to their taste. If, instead of six or seven hours' confinement in school, only five hours at most were devoted to books, and the remaining hours to such exercises as above mentioned, their progress in practical knowledge, so far from being impeded, might be promoted to a much greater extent. Such exercises might be turned, not only to their physical and intellectual advantage, but to their *moral* improvement. When young people are engaged in their diversions, or in excursions along with their teacher, their peculiar tastes, tempers, and conduct towards each other are openly developed; they act without restraint, they appear in their true colours, and a teacher has the best opportunity of marking the dispositions they display. He can therefore apply, at the moment, those encouragements and admonitions, and those Christian rules and maxims, by which their characters and conduct may be moulded into the image of Him "who hath set us an example, that we should walk in his steps." The incidents and the atmospherical phenomena which may occur on such occasions, will also supply materials for rational observations and reflections, and for directing the train of their affections, and the exercise of their moral powers; and no opportunity of this kind, for producing useful impressions upon the young, should be lost by a pious and intelligent instructor.

Thus I have endeavoured, in the preceding pages, to exhibit an outline of some of those branches of knowledge, in which every individual of the human race—the *female* sex as well as the male—should receive a certain portion of instruction. Hitherto the female sex have been sadly neglected; their ducation, where they have not been altogether overooked, has been more showy than substantial; and hey have been generally treated as if they were not ossessed of the mental powers requisite for acquirng all the useful branches of science. Without ntering into the question, Whether the female haracter possesses the same degree of intellectual nergy as that of the other sex? it may be affirmed, ithout the least hesitation, that, when their educaion is properly directed, they are capable of acquiring very branch of knowledge which can improve or dorn the human mind. We have numerous exmples to corroborate this position. It is sufficient o mention the names of Mrs. Barbauld, Miss Aitken, Miss Edgeworth, Mrs. Wakefield, Mrs. Hemans, Mrs. More, Mrs. Marcet, Miss Taylor, Miss Lanon, Mrs. Somerville, Mrs. Willard, Mrs. Phelps, &c. which are only specimens of many others, most f whom are still alive and actively employed, both n Britain and America, in instructing their own sex nd society at large, and in promoting the interests f general knowledge. The female sex possess *ssentially* the same intellectual faculties as the male, hatever may be said as to the *degrees* of vigour in hich the primitive powers exist. But even in repect to the *degree* of acuteness and energy of the emale intellect, we have examples of individuals who, ithout the advantage of an academical education, ave explored the system of the universe, composed ommentaries on the Newtonian philosophy, and proecuted the most abstruse mathematical investigations; nd I have no hesitation in asserting, that academical onours should be conferred on such accomplished females, no less than on the other sex who have enjoyed more opportunities of improvement.* Females have more in their power than the other sex in forming the tastes and dispositions of the young, and in giving them those impressions in early life which may be either beneficial or injurious to society. They are the more immediate guardians and instructors of the rising generation during the first stage of their existence, and upon the discretion and intelligence they display in superintending the evolution of the youthful mind, will, in a great measure, depend the intelligence and the moral order of the social state to which they belong. Their influence is powerful, not only on the tastes and manners of society, but on the moral *principles* and *characters* of mankind. Besides, they are beings destined for immortality, and equally interested as the other sex in all that is awful or glorious in the revelations of Heaven; and therefore ought to have their minds enlightened in every branch of knowledge which may have a beneficial influence on their present conduct and their future destiny. Till more attention is paid to the cultivation of the female mind, among all ranks, society cannot be expected to make an accelerated progress in the course of moral and intellectual improvement.

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* Mrs. Somerville has lately been elected member of the Literary and Philosophical Society of Geneva, the first time an honour of the kind was ever conferred on a female. An American paper states, whether truly or not I cannot determine, that "The Legislature of *Indiana* have chartered a college, to be called The Christian College, in which degrees are to be conferred on both males and females. There are to be degrees of *Doctress* of Natural Science, of English Literature, or Belles Lettres, of Fine Arts, and of Arts and Sciences." However ludicrous this may appear to some, I can see no impropriety in following out such an idea.

In specifying the preceding branches of knowledge as subjects in which all classes of the young should be instructed, I do not mean to insinuate, that, in the first stage of their education, such subjects are to be studied in regular courses, as in academies and universities, though at a future period this plan may be adopted. While they are learning English reading, composition, writing, arithmetic, and other branches, illustrations may be given of the more interesting and popular parts of the physical sciences,—which will tend to give them a *relish* for such subjects, and to prepare them for entering on the more particular study of such branches of knowledge, at a period when their faculties are more matured. Nor ought it to be objected, that, in this way, young persons would only receive a smattering of learning, which would puff them up with vanity, and do them more harm than good. If every portion of knowledge communicated to them, however detached and insulated, be clearly explained and illustrated, and thoroughly understood, it must necessarily be *useful*, either in expanding their views, or in its practical applications. For example, if, by certain pneumatical and hydrostatical experiments, they are made to perceive clear proofs of the atmospheric pressure, and its operation in the case of *syphons*—if they are made to see, by similar experiments, that, on this principle, water may be conveyed either over a rising ground, or along a valley to an opposite hill,—this single fact, clearly understood, might be of considerable use to them on many occasions, even although they *were* unacquainted with all the other principles and facts connected with pneumatical science. The great object to be attended to is, to convey, on every subject, a clear and well-defined idea to the young, and to guide them to the *practical* application of knowledge.

There is a line of Mr. Pope which has been hackneyed about for a century past, which is in every body's mouth, and which is generally misapplied, when an allusion is made to this subject—

> " A little learning is a dangerous thing."

How such a sentiment came to be almost universally quoted and admired, I am at a loss to divine. It is a proposition which cannot be supported by any mode of reasoning with which I am acquainted, and is itself " a dangerous thing," if by learning is understood the acquisition of any portion of useful knowledge. Every one must acquire " a little" portion of knowledge, or learning, before he can acquire a larger share. A child must acquire the knowledge of the letters and elementary sounds, before he can read any language with fluency—and must form some idea of the objects immediately around him, before he can acquire an accurate conception of the subjects and scenes connected with geography. If the proposition be true, that " a little learning is dangerous," then it should follow, that a very great portion of learning, or knowledge, must be *much more* dangerous. If it be dangerous for a boy to know that the earth is 25,000 miles in circumference, and to be able to prove that it is round like a globe, then Newton and Bacon must have been extremely dangerous *individuals*, whose knowledge extended to an almost unlimited range. If a little learning is dangerous, then absolute ignorance and destitution of all ideas must be the safest and the happiest state of human beings. But how can even "a little" knowledge be dangerous? Suppose a young person to have read only the Gospel of Luke, and to have acquired a knowledge of all the facts it records—would he be less happy in himself, or more dangerous to society, on this account, because he had little acquaintance with the other portions of Scripture? or, would he have been better to have read nothing at all? Or, suppose he had been instructed in the fact, that foul air, of a *deadly* nature, is frequently to be found at the bottom of old wells, and that it is requisite to send down a lighted candle to determine this point before a person attempts to descend into such places,—would the knowledge of such circumstances be dangerous to him, because he is not acquainted with the properties of all the other gases, or with the whole system of chemistry? Would an acquaintance with a portion of geography, suppose the States of Europe, be dangerous to any one, because he had not minutely studied all the other quarters of the globe? or would a knowledge of hydrostatics be useless, because he was unacquainted with several other branches of natural philosophy? Such conclusions are obviously absurd, and therefore the proposition under consideration is absolutely untenable. The persons who most frequently reiterate this sentiment are those who are opposed to the universal education of the lower orders, and to the general diffusion of knowledge. I know no class of men to which such a sentiment will apply, except, perhaps, to a few *pedants* who have got a smattering of Greek and Latin at a grammar school or a college, without any other substantial acquirement, and who pique themselves on this account, as if they were elevated in point of knowledge far above the vulgar throng.

But although I have admitted, that, during the first stage of instruction, only a few fragments of knowledge would be communicated, yet before the course is finished, a very considerable portion of all that is really useful in the sciences might be imparted to the young. Suppose that, on an average, every child is able to read with tolerable fluency by the time he is arrived at the age of seven or eight, and that the course of instruction for every member of the community shall be prolonged till he arrive at the period of fourteen years—in the course of six or seven years, a summary view of all the more interesting principles and facts connected with the sciences above specified, might be communicated, even supposing that half a year were exclusively devoted to each. But there would be no necessity for restricting the pupil to one branch of knowledge at a time. While, at one hour, he was receiving instructions and witnessing experiments in natural philosophy or chemistry, during other hours of the same day he might be prosecuting arithmetic, algebra, geometry, or composition. Thus, during little more than the time usually spent in acquiring a knowledge of Latin and Greek, a very considerable portion of useful knowledge might be acquired, which would expand the range of the juvenile mind, increase its sources of enjoyment, and lay a broad foundation for future usefulness and improvement.

And I trust there are few, in modern times, who will hesitate to admit, that the knowledge thus acquired would be infinitely preferable, in point of utility, to all the scraps of classical literature usually picked up, during the same period, at our grammar schools.—But why, it may be asked, should such an extent of knowledge be communicated to the *lower orders* of mankind? I answer, in a few words, Because they are rational beings, furnished by their Creator with faculties capable of acquiring it; because it will increase their enjoyments and render them more useful in society; because it will tend to prevent vices and crimes, and to raise their souls above the degrading pleasures of intemperance and sensuality; because it will render them more expert in their mechanical professions; because it will fit them for becoming improvers of the arts and sciences, and for taking a part in all those movements by which society may be improved and the world regenerated; and because they are beings destined to immortality, and therefore ought to be instructed in every department of knowledge which has a bearing on the future world to which they are advancing, and which is calculated to prepare them for its pleasures and its employments. But, as I have already written a volume chiefly in relation to this point, it would be unnecessary, on the present occasion, to enlarge.

CHAPTER VII.

Moral and Religious Instruction.

In the preceding sketches I have taken for granted, that during the whole process of education, the attention of the young should be directed to the manifestations of the Divine attributes in the works of nature—the fundamental principles of Christianity—the rules of moral action—and the eternal world to which they are destined. These are subjects which should never be lost sight of for a single day, and which should be interwoven with every department of literary and scientific instruction. In a particular manner it should be deeply impressed upon the minds of the young, *that the instructions they receive, and the studies in which they now engage, are intended*, not merely to qualify them for the business of the present life, but likewise *to prepare them for the felicities and the employments of the life to come.* This is one of the ends of education which has been glaringly overlooked in most of our initiatory schools, and particularly in the arrangements connected with a *fashionable* education—a circumstance which seems to indicate, that the superintendents of such an education either do not believe the doctrine of a future state, or view it as a matter of little importance, or consider that no specific training is requisite to qualify a depraved human being for engaging in the sublime contemplations and exercises of the heavenly world.—Having occasionally adverted to this subject in the preceding discussions, I shall, at present, offer only a few general remarks.

On all occasions, the young should be frequently reminded, that they are *dependent creatures*, who derived their existence from an Almighty Being who is without beginning and without end—that their daily comforts and all their powers and faculties are bestowed by Him, and are the effects of his unbounded Goodness—that, though invisible to mortal eyes, he is present in all places, and that they are every moment surrounded by his immensity—that his presence and agency are seen in the solar light, the majestic movements of the heavenly orbs, the succession of day and night, the ebbing and flowing of the sea, the falling rain, the winds, the lightnings, the rolling thunders, and in every movement within us and around us—that though we could climb the heights of heaven, or descend to the centre of the earth, we should still be within the range of his omniscient eye—that his eye penetrates through the dark night as well as through the clear day—that he knows every thought and purpose that is formed in our hearts—that he beholds, at the same moment, whatever is taking place, in every part of the world, and throughout all the regions of the universe, among all the tribes of mankind, and among all the hosts of angels—that his dominion extends over thousands of worlds, and that his universal government shall endure for ever—that he is good to all, and that his kindness extends to the birds of the air, the fishes of the sea, and even to the smallest insect that crawls on the ground—that he is "righteous in all his ways and holy in all his works," unchangeable in his purposes and faithful to his word—that to this Great Being we are all accountable for every thought, word, and action—and that there is a day approaching when "he will judge the world in righteousness, and render to every one according to his works."—Such characteristics of the Divine Being should be illustrated, in so far as is practicable, from *sensible objects*,—His *goodness*, from the numerous creatures He has brought into existence, and the ample provision He has made for all their necessities,—His *wisdom*, from the numerous adaptations which are found in our own bodies, and in the elements around us,—His *power*, from the vast bulk of this world, and of the planetary orbs, and the amazing rapidity of their motions,—His *justice*, from the judgments inflicted on wicked nations,—His *faithfulness*, from the accomplishment of promises and prophecies, as recorded in the history of the world,—and His *love* and *mercy*, in "sending His Son into the world to be the propitiation for our sins."

In attempting to explain the attributes of the Deity, and to impress the minds of the young with a deep sense of his universal presence and agency, it is not necessary that they should commit to memory complex and technical definitions and descriptions of the Divine perfections. Such exercises, unaccompanied with specific and familiar illustrations, can produce no clear and well-defined conceptions of the objects to which they refer; and when mere words are crammed into the memory unconnected with ideas, they must produce a hurtful effect, and lead the g to rest in the *form* of knowledge without the *ance.* Besides, every memorial task in which *ideas* connected with the words are not clearly ived is always accompanied with a *painful* effort. ll our ideas on every subject are originally ed from the objects of sense, so it is by sensible rations alone that we can convey to any mind ever, distinct conceptions of the character and utes of the Almighty. Although a definition y of the Divine perfections may be stated to the g, yet it is chiefly by *examples* illustrative of the ct, that a clear and comprehensive idea of it can nveyed. For example, suppose it were intended plain what is meant by the *wisdom* of God, we t tell them in the words of one author, that isdom is that whereby the soul is directed in the l management of things, or in ordering them he best,"—or, in the language of another, that e wisdom of God is that perfection by which he ts and adopts the most proper means for accoming good or important ends:" but such defini-, simply announced, would convey no definite eption of the thing intended. We must produce ts, or examples, in which wisdom is displayed, describe them in the most minute and familiar ner. We must illustrate, in the first place, is meant by the wisdom of men, by producing ck, a watch, a planetarium, a microscope, a ship, milar machine—pointing out the *object* intended accomplished by such instruments or machines, directing the attention to the *means* employed, the harmonious co-operation of every part in nplishing the end intended. In a watch, for instance, the object is, to point out the hour of the day. The means employed to effectuate this purpose are—a coiled elastic spring, communicating its action to the *fusee*, thence to a series of wheels and pinions, the teeth of which apply to each other, conducting the motion to the balance, and thence to the indexes which point out the hour and minute. The proper position and arrangement of all these parts, the size and shape of the whole, the number of teeth they respectively contain, the materials of which they are constructed, the connection of one part with another, and the harmonious co-operation of the whole to produce the respective motions of the hands, indicate *wisdom* and *design* in the contriver of such a machine, in his selecting the proper means to accomplish the purpose intended. In a similar manner, the wisdom of the Creator must be illustrated by selecting, out of the many thousands of instances within and around us, a few examples, which should be particularly described and elucidated. For example, the admirable structure of the *eye*, the different humours of which it is composed, for the purpose of forming an *accurate* picture of every object on the retina—the apparatus for the contraction and dilatation of the pupil, to adapt it to different degrees of light—the muscles by which the ball of the eye may be easily moved in every direction, and preserved in perfect steadiness—the bony socket in which it is lodged to secure it against accidents—the *lid* which likewise defends it against injuries, wipes off the superfluous moisture, and covers it during the hours of sleep—with many other curious contrivances, all adapted to the nature of *light*, and to the purpose of producing vision in the most easy and delightful manner, showing the most admirable selection of means to bring into full effect the end proposed. In like manner, the curious structure of the ear, and the adaptation of all its parts for receiving impressions from the undulations of the atmosphere—the different articulations of the bones, according to the movements they are intended to produce—the adaptation of the air to the *lungs*, and the vesicles of the lungs to the nature and properties of the atmosphere—the proportioning of the size of man to that of the plants and animals which exist around him—the structure of the various animated beings, and the diversity of organization which exists among them, exactly adapted to their various wants and modes of existence—the gradual approaches of light and darkness—the harmony and order of the celestial motions—and similar examples, when particularly explained and illustrated, will convey clear ideas of what is meant by the *wisdom* of God, and the manner in which it is displayed in the scenes of creation; and in no other way can we impart clear and well-defined conceptions on such a subject. And, when once a clear conception of this attribute of the Deity is impressed upon the mind by such examples, it may be applied to *moral* subjects, and illustrated from the moral dispensations of God towards our race, as recorded in the Sacred History, and in the general history of the world.

Again, suppose we wish to explain the *Infinity* or *Immensity* of the Divine Being, it is not enough to say that "God is without all bounds or limits;"—we must endeavour to illustrate the idea by sensible representations, in so far as they are capable of assisting our conceptions on the subject. It may be laid down as a principle, that "Wherever God *acts*, there *he is*, and that there is no part of the universe in which we do not perceive the exertion of an agency which, either mediately or immediately, proceeds from the Deity." The motions of the moon and the planets, the ebbing and flowing of the sea, the gentle breeze, the impetuous whirlwind, the process of vegetation, the movements of animals, the motions of our fingers and eyelids, the pulsation of our hearts, and every other agency within and around us, are sensible evidences of the presence and incessant operation of the Almighty. And although we were to wing our flight beyond the limits of this sublunary sphere, there is no part of space with which we are acquainted, in which we should not find ourselves surrounded with the emanations of *light*, the action of *gravitation*, and the influence of *caloric*, and other agencies with which we are at present unacquainted.—With regard to the idea of *infinity*, in so far as a partial conception of it can be conveyed, we must likewise have recourse to *sensible* objects and illustrations. We must endeavour, in the first place, to communicate an ample and impressive idea of the extent of the globe on which we dwell, by such methods as stated under the article *Geography*. We may next endeavour to give the pupil an idea of the distance of the moon; then of the distance of the sun, which is placed 400 times farther from the earth; then of the distance of the nearest star, which is two hundred thousand times farther from us than the sun; then to the remotest stars visible through the

t telescopes, whose distance is immensely greater;
l then to the boundless regions of space, which
end in every direction, beyond all that is visible to
eye of mortals. Time must be allowed for the mind
pause and dwell with particularity on each of these
nensions, and on the immense magnitude of the
merous objects contained within them, till it is lost
d overpowered in the immensity of the prospect;
l then be informed, that all this magnificent scene
ut a *small portion*—only like a drop to the ocean—
the infinity of space, which is filled with the Divine
sence, and in which the Deity continually oper-
s. Without such illustrations, all the definitions
metaphysical descriptions that may be given, will
vey no impressive conceptions of the immensity of
d—they will be only words without meaning, and
semblance of knowledge without the substance.
is on a principle of this kind that the Psalmist
ducts his description of the Omnipresence of the
ity in the 139th Psalm—"Whither shall I go
m thy Spirit? or whither shall I flee from thy
sence? If I ascend into heaven, thou art there;
descend into *hades*," or the invisible regions of the
th, "behold thou art there. If I take the wings of
morning, and dwell in the uttermost parts of the
; even there shall thy hand lead me, and thy right
d shall hold me." When the inspired writers
play the character and attributes of the Deity,
y do not perplex us with definitions and abstract
criptions, but direct us to his visible operations in
ture and Providence, as descriptive of his character
l perfections; and this circumstance must be con-
ered as suggesting the proper mode of illustrating

his attributes, either to the young, or to any other class of individuals.

In connection with such instructions as the above, the juvenile mind should be directed to the *History of the Divine dispensations*, as recorded in the Old and New Testaments. It is a striking fact, that the greater part of the Revelations of Heaven is communicated in a *historical* form. Had the limited views of man been adopted, as to the *mode* of a communication from heaven, it would have been thrown into the form of an artificial system of propositions or doctrines, similar to some of our metaphysical compends of theology. But "He who knoweth our frame," and who is the Source of intelligence, has selected the historical form as the most proper mode of conveying instruction on those subjects which have a reference to our present and everlasting happiness. This mode of instruction is evidently attended with many and peculiar advantages. It is calculated to arrest the attention, to influence the affections, to awaken the power of imagination, to carry conviction to the mind, to render truth and duty more level to the understanding than abstract doctrines or precepts, and to make a deeper impression upon the memory than any other mode of instruction. Besides, the Sacred history, in a particular manner, is remarkable for its beauty and simplicity, the dignity of its style, and the fidelity and impartiality with which its narrations are conducted. It delineates, with an unerring pencil, the true characters of men, traces the invisible springs of human actions and events, relates with uniform fidelity the faults of the most eminent and illustrious saints, and exhibits examples of vicious characters to be shunned, and of virtuous characters, blended with certain imperfections, as models for our general imitation. Above all, it embodies virtue in its most amiable and sublime form, in the account which it gives of the life, transactions, and sufferings of Jesus Christ, who is set before us a *perfect* pattern of universal holiness.

The young should, therefore, be early directed in the study of all those portions of Sacred history which are most congenial to their feelings and level to their comprehension;—particularly the history of the creation and the fall of man—the circumstances which attended the universal deluge—the destruction of Sodom—the lives of Abraham, Isaac, Jacob, Joseph, Moses, and Samuel—the deliverance of the Israelites from Egypt, and the leading events which befel them in the wilderness, and in the land of Canaan—the life and transactions of Elijah and Elisha—the deliverances of Jonah, Daniel, Shadrach, Meshech, Abednego, Peter, and Paul—the circumstances which attended the birth, the transfiguration, the crucifixion, the resurrection, and ascension of Jesus Christ—the preaching of the gospel by the Apostles, and the various persecutions and success which attended their labours—together with every similar detail in the history of the Bible, that may be calculated to arrest the attention of the juvenile mind.—In connection with the *facts* which these histories record, all the essential *doctrines* of religion are clearly stated, and its *precepts*, or the true principles of human action, are powerfully, though in some cases silently, inculcated. Thus religion is exhibited, not merely as a creed or a series of abstract propositions to be believed, but in an *embodied form*, in which the doctrines and duties of Christianity are connected with a train of events, incidents, and sensible objects, and with the delineation of characters and moral actions, which form so many links of *association* between doctrine and practice which cannot be dissevered. It is evident, then, that the mode in which Revelation has been communicated to man is intended as a *model* to direct us in imparting religious instructions to the young, or to any other class of society. And, when we substitute, *in the room of the Scriptures*, catechisms, or any other abstract compends of divinity, however orthodox, we virtually declare, that the wisdom of man is superior to the wisdom of God, and that the plans devised by erring mortals are to be set in competition with the plan of *inspired* men, who derived their instructions immediately from the Divine Spirit. Besides, the instructions on religion derived from such compilations, even when understood, (which they seldom are,) are received by the young merely on the authority of the authors or compilers, and can never produce such a thorough and rational conviction of their truth and obligation, as if they were delivered in the language of men who derived their instructions and commission immediately from Heaven. In deviating from the plan of Divine Revelation, numerous disputes and dissensions have arisen in Christian society. Almost all the controversies and dissensions which have taken place as to the manner of conducting Sabbath schools, have arisen from such a circumstance as this—Shall the words of a certain *Catechism*, whether understood or not, be crammed into the memories of all the pupils? With one party it is of little consequence although the same leading *truths* be communicated in scriptural or other language, unless the precise vocables of the formulary they approve of be strictly adhered to and committed to memory, as if they were the immediate dictates of inspiration. Hence a sectarian spirit has been engendered, contentions and wranglings have been introduced, the advantages which might have been derived from the study of the pure oracles of heaven prevented, and the religious improvement of the young sacrificed to party rancour and hostility.

It appears to me unnecessary, in the first instance, to perplex the minds of young persons with a great variety of doctrinal opinions, such as are generally inculcated in most of our Confessions and Catechisms. It is only requisite that a few of the fundamental and leading doctrines of Christianity be exhibited, such as the moral attributes of the Deity—the fall of man, and his consequent depravity—the necessity of a Saviour—the love of God in sending his Son into the world to be a propitiation for our sins—repentance towards God, and faith towards our Lord Jesus Christ, the necessity of being renewed in the spirit of our minds, and of prosecuting the path of universal holiness—the connection of the present state with the future, and the important realities of the eternal world. These, and similar truths intimately connected with them, should be specifically illustrated, and deeply impressed upon the mind as the first principles or axioms of the Christian system. In conjunction with these, some of the leading moral precepts of the Bible should be particularly inculcated, and illustrated by appropriate examples, such as—"Thou shalt love the Lord thy God with all thy heart—Thou shalt love thy neighbour as thyself —Whatsoever ye would that men should do to you, do ye even so to them—Love your enemies, do good to them that hate you—Bless them who curse you—If thine enemy hunger, feed him, if he thirst give him drink—Let love be without dissimulation—Live peaceably with all men—Be not desirous of vain glory—Recompense to no one evil for evil—Put on *humbleness of mind*, meekness and long-suffering—Forbear one another, and forgive one another, if any man have a quarrel against any: as Christ forgave you, so also do ye—Put away *lying*, and speak every man truth with his neighbour—Children, obey your parents—Be followers of Christ, who did no sin, neither was guile found in his mouth, and who hath left us an example that we should walk in his steps." Such Christian precepts, frequently brought to the view of the mind, and familiarly illustrated by examples derived from Scripture, and from common life, could not but make an impression on the young, far more beneficial than if it were possible to cram into their memories all the definitions, distinctions, and dogmas of metaphysical theology. Such heavenly injunctions, when clearly explained, come home to the understanding and the feelings; they are recognised as the pure dictates of the Spirit of God; and although there were no other precepts presented to view but those I have now stated, a full recognition of such heavenly principles, in all their practical bearings, would, ere long, completely regenerate the world, and cause righteousness and praise to spring forth before all nations.

In endeavouring to teach young persons the *orality* of the Bible, and to imbue their minds with ts holy principles, it is not enough that its precepts e announced, and that they be accustomed to *recite* hem. They should be pointedly applied to every oral incident that may occur, and to whatever tem- ers or dispositions may be displayed in their conduct. *very time a vicious disposition manifests itself, a hristian precept should be applied to counteract it.* s a boy, for instance, taking revenge on his com- anion for an injury either real or supposed, such recepts as these should be pointedly addressed to im:—"Recompense to no man evil for evil.—venge not yourselves, but give place to wrath.—less them that curse you, and pray for them that espitefully use you." Does he manifest a proud nd overbearing disposition? Apply such divine axims as these:—"God resisteth the proud, but e giveth grace to the humble.—A proud heart is n abomination to the Lord.—Though God is high, e hath respect to the lowly; but the proud he noweth afar off.—Put on humbleness of mind, eekness and long suffering; and let each esteem nother better than himself." Does a principle of nvy, hatred, or malice, manifest itself? Those pas- ages of Scripture which condemn such dispositions hould be brought forward and illustrated:—"Let ll bitterness, and wrath, and clamour, and evil- peaking, be put away from you, with all malice.—The works of the flesh are hatred, strife, envies, murders, &c.—He that hateth his brother is a mur- derer.—If a man say, I love God, and hateth his rother, he is a liar.—Where envy and strife is, there is confusion and every evil work." The tendency of such dispositions, and the dreadful consequences which frequently result from them, should be illustrated by such examples as these:—The brothers of Joseph envied and hated him, and under the influence of these diabolical affections, would have murdered him, if the providence of God had not prevented.—Ahab envied Naboth, and caused him to be put to death.—Haman hated Mordecai, and caused a gallows be prepared for his destruction, on which he himself was hanged.—The Jews, from hatred and "envy," delivered up Jesus to the Roman governor to be crucified. In like manner it may be shown, that all the wars, contentions, and persecutions, which have convulsed and desolated the world, are the natural results of envy and hatred, and that the indulgence of such principles *unfits* the soul for the enjoyment of eternal life.

There can scarcely be a doubt, that the best mode of impressing the minds of the young with the moral principles of Christianity is, to exhibit the operation of these principles in real life, and to point out specifically those dispositions and modes of conduct which are directly opposed to the precepts laid down by our Saviour, and to the example he has set before us. For this purpose, a watchful eye should be kept on their conduct, and on the temper it displays. Even the most minute ramifications of their conduct should be strictly inspected; and those looks and gestures, words and actions, which may at first sight appear trivial or indifferent, should not be altogether overlooked; for, in many instances, they manifest the existence of an evil principle ready to burst forth into action, and which should be carefully counteracted. There are a great many dispositions of this kind which are daily manifested in families, and at public seminaries, which are either altogether overlooked, or considered as the mere ebullitions of youthful frolic or amusement, which, nevertheless, involve principles altogether inconsistent with the dictates of inspiration, and with the harmony and order of the intelligent universe. And if such evil principles be not destroyed in the bud, they will "grow with their growth, and strengthen with their strength," till they appear in all their noxious luxuriance in the active scenes of social life. The following are some of the practices to which I allude:—Tossing away hats and caps, calling nicknames, tearing books, acting deceitfully in making bargains, pinching and scratching, boxing and fighting, taking delight in teazing and vexing one another, mocking at natural defects and infirmities, valuing themselves on account of the finery of their dress, taking revenge of injuries, envying their companions on account of their acquirements and the approbation bestowed upon them, manifesting a spirit of pride and domination, mocking the aged, the lame, or the blind, wanton cruelty towards the inferior animals, or encouraging them to fight with each other, injuring trees, shrubs, or flowers, cutting or hacking walls, tables, or any useful piece of furniture, equivocating when giving evidence in relation to any fact,—and many similar practices, which are too seldom counteracted by the proper application of Christian principles. In particular, the practice of boxing and fighting, and every other revengeful action, should be reprobated and condemned with the utmost firmness and decision, as subversive of every principle that pervades the Christian system. That such practices have abounded at our public schools, and still too much abound, is a disgrace to our character as a professing Christian people, and to those who have the superintendence of the morals of the young. The practice of *pilfering* should likewise be promptly checked, and a strict regard to honesty and uprightness encouraged and enforced. However trifling the value of the article—although it should be only a pin, a gooseberry, a pea, a marble, or a cherrystone, no one should be allowed to interfere with it, if it is claimed as the property of another; for it is not the value of the article, but the *principle* of the action, which demands our consideration. Above all, *lying* should be represented in such a light as to be held in universal abhorrence; and the importance of *truth*—which is the bond of society, and the basis of the intelligent universe—should be illustrated and enforced by every scriptural and rational consideration.

For the purpose of illustrating the principles of moral action, and of applying the precepts of Christianity to particular cases of delinquency, it might be proper to set apart a portion of one day in the week for inquiring into moral conduct, whether blameable or praiseworthy. Cases of this description would be known to the teacher, and others would be brought forward by the young people themselves. A particular case should be stated in all its circumstances, and the attention of the whole school directed to it. Suppose a boy has been convicted of *falsehood*—having sauntered about the fields in company with some idle companions, when he should have been at school, and having afterwards informed his parents that he was then regularly attending on his instructions. The precepts of the Word of God which bear against falsehood, should, in the first place, be brought forward,—such as, "Thou shalt not bear false witness. —The Lord hateth a lying tongue.—Lie not one to another.—Putting away lying, let every man speak truth with his neighbour.—All liars shall have their part in the lake which burneth with fire and brimstone." The dismal consequences which would follow, if truth were universally violated, might next be stated. All confidence among intelligent beings would be completely destroyed; there could be no friendship nor affectionate social intercourse—no improvement in knowledge—no seminaries of learning, no villages or towns could be reared, nor fields cultivated—every one would shun the society of his neighbour, and we could become acquainted with nothing but what we ourselves had seen or experienced. The happy effects which would result from a universal adherence to truth might then be illustrated; and a narrative or two might be read, exemplying the importance of truth, and the mischievous effects of falsehood. Abundance of such narratives will be found, both in civil and in sacred history, and they should always be at hand for illustrating and enforcing instructions of this kind. The delinquent should then be reasoned with on his conduct, and admonished with such *seriousness* and *mildness* as may tend to convince him that you have his best interests at heart. In like manner should all other kinds of delinquencies be publicly investigated, and the opposite virtues explained and inculcated. When a youth has been found frequently guilty of committing the same fault, after repeated admonition, it may be proper that punishment of some kind or other be inflicted upon him. Corporeal punishment, however, will seldom have any good effect. Few cases, I presume, will be found, where either young or old have been *whipped* into the paths of wisdom and holiness. The punishment selected should be such as has a tendency to excite reflection on the evil of the offence, and to lead to penitence. Till repentance and amendment be clearly manifested, the delinquent should be banished from the play-ground, and from all the usual sports and associations of his companions, that he may feel ashamed of his conduct; and when he has given full satisfaction to his teacher and his school-fellows, let him be cordially received into favour, and reinstated in his former privileges. This is the principle which the Apostle Paul lays down with respect to the members of Christian Churches:—"Withdraw yourselves from every brother that walketh disorderly." And I see no reason why the same principle may not be applied to accomplish the same end in the case of the juvenile members of public seminaries. It is to be understood, however, that it is only those faults which are publicly known that should be publicly investigated,—those which are known only to the teacher and the delinquent should be discussed in *private*, in the manner now suggested, or in any other way that circumstances may dictate.

Actions which are praiseworthy should likewise be publicly noticed, and mentioned with due commendation. If any young person has rescued a little

l from the hands of wicked boys who had been
ltreating her, and conducted her safely home—if
has shared a morsel of his bread with a hungry
low-creature—if he has found a toy, a book, a
cket-handkerchief, or a piece of money, and re-
ored it to the owner—if he has showed kindness to
e blind or lame—if he is attentive to his learning,
d obedient to his parents and instructors,—such
amples of virtuous conduct should receive their due
ed of praise, and be exhibited as patterns for imi-
ion, and those Christian precepts which enjoin
em brought forward and inculcated. Commenda-
n animates and encourages the minds of children,
d when it is merited should never be withheld.
t the same time, they should be reminded, that
ien they have done all that they were commanded,
ey have done nothing more than what was their
ty to do; and, that no services of ours, however
aiseworthy, can be *meritorious* in the sight of God;
at such actions, however, are *essentially neces-
ry* as evidences of a renewed nature and of our sub-
ction to the authority of God—that they promote
r own comfort and the happiness of others—and
at they prepare us for the employments and the
ciety of heaven, where all the Christian virtues
ll be displayed in perfection without any mix-
re of evil.—Were such instructions and illustra-
ns of moral principle, as now suggested, regularly
tended to, and every disposition and action of the
ung submitted to the test of Christian princi-
e, there can scarcely be a doubt that the most
neficial results would soon appear, and the moral
ate of society be improved far beyond what we have

ever yet experienced. But, if we are remiss in our attention to the best interests of the young, and refuse to bring into full operation a rational system of moral and religious instruction, we have no right to complain of the vicious dispositions of the rising generation, or the licentiousness and depravity of general society.

In recommending to the young the study of the Scriptures, every requisite direction and assistance should be afforded to guide them in their researches into the oracles of God. When reading the historical parts either of the Old or the New Testament, maps of Palestine, and of the adjacent countries, should be put into their hands, that they may be enabled to trace the journeyings of the Israelites in the wilderness, the relative positions of the twelve tribes in the land of Canaan, the travels of Jesus Christ and his apostles, and the situations of the principal cities, towns, mountains, rivers, lakes, and seas, mentioned in the Bible. To assist their conceptions of the Jewish tabernacle and temple, plans of these buildings should be presented, along with figures of the altar of burnt-offering and of incense, the ark of the covenant, the table of show-bread, the golden candlesticks, the brazen laver, and other sacred utensils. To illustrate the antiquities of the Jews and other eastern nations, their customs, buildings, &c. sketches should be given of their *manners* and *customs*, arts, sciences, vegetable productions, and peculiarities of climate, which are frequently alluded to by the sacred writers, and which should be illustrated by engravings in so far as they tend to convey ideas on the subject. They should be taught to acquire clear conceptions about every thing they read, and, when they meet with difficulties or obscurities, never to rest satisfied till they receive the requisite explanations. When they read a description of any scene or transaction, such as the Israelites passing through the Red Sea, or assembled around Mount Sinai—our Saviour teaching the multitudes from a ship on the Lake of Gennesaret—or Paul standing on Mars hill, addressing the people of Athens—they should be instructed *to represent in their imagination the various objects which compose the scene* as delineated by the historian, whether mountains, rivers, seas, corn-fields, buildings, or assembled multitudes, which would tend to connect with sensible objects the moral instructions to be derived from such narratives. In forming such pictures of imagination they might be assisted by the teacher selecting parts of those scenes in their own country with which they are acquainted, and leading them to imagine the objects and transactions recorded in the Bible as passing immediately before them amidst the scenery with which they are familiar; or by presenting before them accurate engravings of the natural and artificial objects connected with Judea and other eastern countries, in so far as they can be procured. In this point of view, it is much to be regretted, that almost all the pictorial illustrations of our "Family Bibles" are absolutely worthless and worse than useless, omitting almost every thing that is instructive and consistent with fact, and introducing silly and fictitious scenes, full of anachronisms, inconsistencies, and violations of costume, which have no other tendency than to convey a degrading and distorted conception of the scenes recorded in sacred history. Above all things, the young should be directed to consider, that every transaction recorded in Scripture is intended to produce an intellectual and a *moral* effect, either to display the perfections of God, the character of his moral government, the safety and happiness of those who put their trust in him, the evil tendency of disobedience to his laws, or the path of duty in which we ought to walk in the various circumstances in which we may be placed. "All Scripture is profitable for doctrine, for correction, for reproof, and for instruction in righteousness;" and therefore the study of no portion of sacred history should be discontinued, till its moral instructions be clearly perceived and applied. Questions and exercises of various kinds, in relation to scriptural facts, doctrines, and duties, should be prescribed, to excite the attention, and direct the judgment of the young in their investigation of divine subjects; but as we have now various little books calculated to direct the juvenile mind in such exercises, it is needless to dwell on the subject.

It might not be improper to have a *text-book* or two, selected from Scripture, and interspersed with occasional remarks, tending to elucidate certain passages and events. We have class-books for schools, the greater part of which is selected from plays, novels, farces, and *Pagan* historians and moralists. And why should we not have a text-book selected from the oracles of inspiration, which contain a *greater variety* of sublime and important matter than is to be found in any other source of information? Such a text-book might comprise selections on such topics

the following:—*Subjects which tend to expand*
r intellectual views of the Deity, and of the universe
has created—comprising descriptions of the Ma-
sty and Supremacy of Jehovah, the eternity of his
istence, his universal presence and agency, his
re, faithfulness, and immutability, his unbounded
odness, the wisdom and rectitude of his moral
vernment, and the care he exercises over every
der of his creatures—the existence of angels, and
e offices they perform under the Divine administra-
n—the immortal destiny of man, and the pros-
cts opened to the righteous of eternal felicity in
e future world. Selections in reference to the
fections and *the duties incumbent upon persons in the*
fferent relations of life. In this department those
ties and affections which are *peculiarly christian,*
ould stand prominent, such as humility, lowliness
mind, love to enemies, doing good to those who
te us, striving against sin, loving our neighbour as
rselves, cultivating heavenly desires and affections,
c. *Selections addressed to the taste and imagina-*
n—embodying the beauties of history, poetry, and
quence, which are profusely scattered throughout
e sacred writings. *Selections of biography,* includ-
g the lives of Jacob, Joseph, Moses, Elijah, Heze-
ah, Daniel, John the Baptist, the Apostle Paul,
c. These, along with selections on *various other*
bjects, might be illustrated with critical remarks,
tracts from works on Eastern manners and customs,
scriptions of modern Palestine, and the adjacent
untries, the accomplishments of Scripture prophe-
s, as recorded in history, anecdotes of young per-
ns, the lives of true Christians, the judgments which

have befallen persecutors and apostates, the progress of Christianity through the world, and the benign effects it has produced on the state of society. Such a work, if judiciously arranged and executed, and studied with care, could not but produce a beneficial influence on the taste and affections of the young, and lead them to admire and venerate the oracles of heaven. It is, doubtless, one cause of the low state of Christianity, and of the influence of Pagan maxims in general society, that such text-books have never yet been introduced into our seminaries of education.

CHAPTER VIII.

Sabbath Schools.

Of late years these institutions have rapidly increased, both in Great Britain and in the United States of America, and, if properly conducted, are calculated to produce a highly beneficial effect on the religious improvement of the rising generation. In a preceding part of this volume I offered a few strictures on the mode in which some of these institutions were formerly conducted; and, although the evils there complained of still exist to a certain extent, I am happy to say, that in many of these schools a more rational and efficient system is now beginning to be adopted. The teachers, many of whom are men of piety and intelligence, are now convinced of the futility of mere memorial exercises, and are beginning to address the *understanding* and the *affections* of their pupils, so that they may be enabled to enter into the spirit and meaning of the truths inculcated. Still, however, I am decidedly of opinion, from all that I have ever witnessed in these institutions, that the system of religious instruction is far from having reached its highest pitch of improvement, and that it is susceptible of being carried to a degree of perfection which it has never yet attained. The evils and defects which adhere to the system as it exists in most of our Sabbath school institutions, are such as the following:—1. The memory is still too much exercised and burdened with the retention of words, while a corresponding degree of attention is not paid to the exercise of the rational faculty. 2. *Religious instruction is too much confined as to the range of its objects and illustrations.* Instead of confining it chiefly to a few propositions in regard to what are termed the fundamental doctrines of the gospel, it should extend to the whole range of objects comprised within the compass of Divine Revelation, and to all the illustrations of those objects which can be derived from history, geography, the sciences, and the works of nature. 3. Discussions on systematic theology too frequently usurp the place of pointed moral instructions addressed to the affections and the conscience. 4. Catechisms and other human formularies are too frequently set in competition with the instructions to be derived directly from the Scriptures. 5. Many of the teachers, however pious and well intentioned, are deficient in that degree of biblical and general knowledge which all religious instructors ought to possess. This last circumstance I consider as one of the greatest deficiencies in our Sabbath school arrangements, and therefore shall offer a few remarks on the subject.

It is generally admitted, that a professor of any science, such as chemistry, ought to be acquainted not only with all its principles and facts, but with those subjects, such as natural history, experimental philosophy, and physiology, with which it stands connected. It is also admitted, that the religious instruction of the adult population, in order to be respectable and efficient, requires that the ministers of religion be trained in all those branches of knowledge which tend to prepare them for their office, and that they be men not only of piety, but of talent and intelligence, and found qualified by their superiors for the duties they undertake. And can we suppose, that either the literary or the religious tuition of the *young*, can be intelligently or efficiently conducted by men who are comparatively ignorant, and who have undergone no previous training for such an office? On the contrary, I have no hesitation in asserting, that instructors of youth ought to have as much information on every subject as is usually judged necessary for a respectable minister of the gospel, and even more than many of this class actually possess. Besides, they ought to possess not only *clear conceptions* of every portion of knowledge they wish to impart, but also of the best modes in which it may be communicated with effect to the juvenile mind. It requires even more information and greater powers of mind to simplify knowledge, and render it perspicuous to the opening intellect, than to convey it to the understandings of those who are advanced in years. The man who wishes to act as an intellectual and religious instructor, should, if possible, acquire a comprehensive view of the whole of the revelations of Heaven, and of the collateral subjects with which they are connected—of the leadng facts of ancient and modern history—of the scenery of nature in all its varied aspects—of the operations of the Creator which are displayed in the "firmament of his power," and of human nature as exhibited in all the scenes and relations of social life. For it is from these, and similar sources, that he is to derive his *illustrations* of divine subjects; and unless such subjects be illustrated by sensible scenes and objects, no clear and distinct ideas can be communicated to the young, nor any deep impressions made upon their hearts. The instructor of the young must have the faculty of ascertaining the *range of thought* possessed by his pupils—of *adapting his instructions* to that range of thought—and of renderng the ideas they have already acquired subservient for increasing their number, and for opening a wider ield of intellectual vision. For this purpose, his magination must roam over the whole circle of his own knowledge, to select objects, events, scenes, circumstances, and similes, adapted to the comprehenion of his pupils, and calculated to expand their views, and to illustrate the particular subject to which their attention is directed. He must someimes extend his views to the histories of ancient imes, both sacred and profane, to the circumstances which attended the accomplishment of ancient prophecies, and to the doctrines, maxims, and precepts of he Bible—sometimes to the knowledge he has acquired of the earth, the ocean, or the atmosphere, the animal and vegetable creation, or the glories of the heavens—and sometimes to the state of barbarous nations, the persecutions of the church, the lives of good men, the progress of the gospel among unenlightened tribes, the scenes of domestic life, or the wars and revolutions of nations. Circumstances, incidents, anecdotes, descriptions, and similes, derived from such sources, he will find expedient, and in some cases necessary, to be brought forward for explaining and illustrating many portions of Divine Revelation. And therefore, were it possible for a teacher to be a man of *universal knowledge*, so much the more qualified would he be for imparting religious instruction, provided he had the art of *simplifying* his knowledge, and rendering it subservient to moral improvement. If religious instruction, indeed, consisted in nothing more than prescribing *tasks*, and hearing children recite catechisms, psalms, hymns, and passages of Scripture, any man, however ignorant, who had been instructed in the art of reading, might be considered as qualified for such an office;—and hence, I have seen men, pious and well-meaning perhaps, but ignorant of almost every branch of knowledge, and without any *clear ideas* on the subject of religion, appointed as Sabbath school teachers, who did nothing more than take the Psalm-book or Catechism into their hands, and put on their spectacles to see that the youngsters repeated their prescribed tasks with tolerable correctness. But if the great object of religious instruction is, or ought to be, the communication of clear ideas respecting the attributes of God, the principles of his moral government, the variety nd immensity of his works, the history of his pro- idential dispensations, the plan of his redemption, nd the way in which its blessings are to be obtained, he principles of moral action, and the rules of duty e has prescribed, and whatever tends to display the iches of his grace and the glories of his universal ingdom—in so far as such subjects can be imparted o the youthful mind—then it is evident, that a reli- ious instructor ought to be a person endowed with s much general and Biblical knowledge as he can ossibly acquire.

In throwing out the above remarks, it is by no means intended to insinuate, that no good has been effected in Sabbath schools where the teachers were comparatively ignorant; as I believe many good impressions have been made upon the youthful mind by pious and well-meaning men whose range of information was extremely limited. But it is evident, at the same time, that were such instructors more enlightened than they have generally been, a much greater degree of important instruction would be communicated, and a more powerful moral impression made upon the heart.

It is consistent with the dictates of reason and the general practice of mankind, that every man should be trained for the profession he adopts, and be found qualified for any office before he enter on the performance of its duties. And is the religious instruction of the young a matter of so trivial importance, that such a rule should be set aside in appointing teachers to Sabbath schools? If not, then every one who wishes to devote himself to the religious tuition of the rising race, should be regularly trained in all those branches of sacred knowledge which are requisite for rendering his instructions fully efficient for the purpose intended. It should likewise be ascertained whether he be of a communicative turn of mind, and has acquired a facility of imparting ideas to the youthful understanding; and for this purpose his qualifications should be tried by experiment, by placing under his superintendence, for a few days, the instructions of a religious seminary. Every one found duly qualified for the office should receive a certain pecuniary compensation, as well as the teachers of other seminaries, provided he chooses to accept of it. Hitherto our Sabbath schools have generally been taught *gratis* by the benevolent individuals who have devoted themselves to this service, and if duly qualified instructors can be found who will give their services without remuneration, no objection, of course, can be brought against such labours of love; but it is nothing more than equitable, that every man who devotes his time and the energies of his mind to any object, should receive a fair compensation for his exertions, especially when he is under obligation to cultivate his intellectual powers, and to pass through a course of training for this purpose.

The departments of knowledge to which religious instructors should devote their attention are such as the following:—1. *Sacred History*, or, in other words, the Records of the Divine dispensations, as contained in the Old and New Testaments. For elucidating certain portions of this history, unravelling difficulties, answering objections, and explaining various circumstances connected with the Jewish worship and economy, the perusal of such works as

ne's "Introduction to the study of the Bible,"
ckford's "Connection of Sacred and Profane
tory," and *Stackhouse's* "*History of the Bible*,"
icularly the last, will be found of great utility in
nding our views of the revelations of Heaven,
of the facts connected with the moral govern-
t of God. For illustrating the history of the
s and surrounding nations, from the time of the
het Malachi to the birth of Christ—a period of
e than four hundred years, during which many of
iel's prophecies were accomplished—the First
k of "The Maccabees," Josephus' "Antiqui-
" and his "History of the Wars of the Jews,"
Prideaux's "Connection of the History of the
and New Testament," will be found particularly
ul.—2. *Ancient History and Geography.* The
ory of such nations as the Egyptians, Assyrians,
ylonians, Medes and Persians, is so interwoven
the sacred history and the predictions of the
hets, that a knowledge of it is, in many in-
ces, necessary for understanding the descriptions
allusions of the inspired writers. Millot's "Ele-
ts of General History," part i. and "Rollin's
torical Works," particularly his "Ancient His-
," will afford the most satisfactory information on
subject. In connection with the history of an-
t nations, *ancient geography* should be particu-
y studied, for the purpose of acquiring clear ideas
the boundaries and divisions of the Land of Pa-
ine, and of the relative positions of the countries
t lie adjacent to it, which are so frequently alluded
n the history both of the Old and New Testa-
ts. Without some knowledge of this subject we

can have no clear conceptions of many interesting circumstances recorded in the writings of the Prophets and Evangelists, and must frequently read their narratives without ideas. *Maps*, on a large scale, of the countries to which I allude, are of course indispensably requisite, when engaging in this study; and such maps should be hung up in every Sabbath school, and referred to, for illustrating the narratives of the sacred historians. Well's "Sacred Geography," and his "Set of Maps of Ancient Geography," and similar works, will afford the requisite information on this subject.—3. *The circumstances connected with the fulfilment of ancient prophecies.* The accomplishment of prophecy is recorded either in the sacred history itself, in the annals of civil and ecclesiastical history, in the present state of the nations and the events passing under our daily observation,—or it is to be looked forward to in the prospects which will open on future generations. Hence the necessity of being acquainted with the *history of the Church and of the nations*, and with the political and religious movements now going forward throughout the world, if we wish to trace the faithfulness of God in the accomplishment of the predictions of his word. Such works as Newton's "Dissertations on the Prophecies," and Keith's "Fulfilment of Prophecy," and his "Signs of the Times," will direct the mind to many interesting views on this subject.

4. Another subject which deserves the attention of religious instructors, is, *Biblical Criticism and interpretation.* As the Scriptures form the groundwork of all religious knowledge, it is of importance to ascertain that the copy or edition which we use

aches as nearly as possible to the original; and
we are satisfied on this point, it is equally im-
t to determine the rules by which the different
ns of the Bible are to be *interpreted*, according
subjects on which they treat. This includes
uiry into the *literal* meaning of words, and the
tive sense in which they are frequently used—
ope of the writer—the parallel passages—the
s of poetic imagery, or the objects whence the
l writers derive their figurative representations
principles of symbolical language—and a know-
of the *localities* in which the writers were
l, and the *historical circumstances* to which they
. On this subject many voluminous works
been written; but the general reader may, per-
be sufficiently gratified by the perusal of such
es as Carpenter's "Scripture Difficulties," and
Popular Lectures on Biblical Criticism and
pretation."—5. *The manners and customs of*
astern nations. The manners, customs, arts,
ciences of the Hebrews, and the natural and
ial scenery with which they were surrounded,
ed a powerful influence upon their literary pro-
ns—even upon those which were dictated by
ation. Without a knowledge of these it is im-
le, in many instances, to unravel the sense of
spired writers, to perceive the beauty and em-
s of their compositions, or to feel the full force
ir narratives and allusions. For the elucida-
f this subject we are now furnished with a va-
of interesting works, of which the following are
mens:—Paxton's "Illustrations of Scripture;"
er's "Observations on certain passages of Scrip-

ture;" Taylor's "*Fragmenta*," appended to Calmet's Dictionary; Burder's "Oriental Customs;" Carpenter's "Scripture Natural History;" and the reports of certain modern travellers, such as Burckhardt, Buckingham, Legh, Dr. Jowet, and the American Missionaries. In the first six volumes of "The Modern Traveller," compiled by Mr. Conder, almost every thing will be found requisite for the illustration of the physical geography, climate, seasons, &c. of Judea, and the surrounding countries. An occasional reference to such subjects for the elucidation of Scripture, could not fail of exciting the attention and improving the understandings of the young.

6. *The study of the system of Nature*, or the material works of God, as displayed throughout the earth and the starry firmament. To these works the inspired writers, on numerous occasions, direct our attention, as evidences of the Power, Wisdom, and Goodness of Jehovah, and of his superintending Providence. They should therefore be studied with care and contemplated with an eye of intelligence, as illustrative of the perfections of the Deity and of the declarations of his word. There is nothing to which young people listen with more attention than to familiar discourses on the wonders of creation, when they are delivered in a clear and distinct manner, and made level to their capacities; and when the works of God are brought into immediate connection with the truths of his word, a more powerful impression of these truths, on the principle of association, will be made upon the mind. For example, when we describe the immense mass of water

n the caverns of the ocean; the lofty ranges of mountains; the flaming volcanoes; the magnitude of our globe; the rapid motion with which it flies through he voids of space; or the immense number and size f the celestial orbs—and bring these objects in connection with such passages as these: "He holdeth the cean in the hollow of his hand; he hangeth the arth upon nothing; he meteth out the heavens with span; and taketh up the isles as a very little thing —Great is our Lord, and of great Power, his understanding is infinite—Great and marvellous are thy works, Lord God Almighty:" &c.—when these passages are at any time recalled to mind, the objects which illustrate them will naturally occur; and, when the objects themselves are directly contemplated, the mind will revert to the dictates of inspiration with which they were formerly associated. For he purpose of acquiring some general knowledge on his subject, religious instructors should peruse some f the popular works which have been lately published on the subjects of Natural History, Geography, Astronomy, Experimental Philosophy, and Chemistry, such as those formerly recommended, nd particularly those works which treat of Natural Theology, and the connection of science with religion.*—Besides the above departments, the Sabbath school teacher should study with particular attention *human* nature in all its varieties and modes f operation. He should learn to contemplate, with he eye of a Christian philosopher, the dispositions f mankind, as displayed in their social intercourses, the scenes of public and domestic life, the various modes in which the principle of evil operates, and the practices, whether good or bad, which prevail either in Christian or in general society. From such sources he will derive many home illustrations of the effects of sin, and of the manner in which Christian principle should operate in all the ramifications of human society. He should likewise study some of the best works on the "Evidences of Christianity"—a system of Divinity such as "Dwight's Theology"—and, above all other branches of knowledge, he should study with the utmost care the discourses of our Saviour, as recorded in the Evangelists, and the *practical parts* of the writings of the Prophets and Apostles, which, in religious instructions, are too frequently thrown into the shade.

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* See p. 431.

In teaching Sabbath schools, a practice which is not uncommon should be carefully avoided—and that is, *addressing long-winded discourses to young people*, most part of which they do not understand. I lately visited a school in a neighbouring town, containing from 80 to 100 catechumens. Among these were about 20 young persons, chiefly females, from the age of 16 to the age of 24; the rest were children from 7 to 12 years of age. After the *repetition* of texts, psalms, catechisms, and passages of Scripture, more than an hour was consumed in some crude dissertations, in a preaching style, on the meaning and references of some passages in the prophecies of Isaiah, which none of the younger persons could possibly understand; and only about a dozen general questions, for the sake of form, were put to the younger class, to which the answers, "yes," or "no," were chiefly required. It seemed as if the chief aim of the teacher had been to recommend himself to the attention of the adult part of his audience, while the children were sitting in a state of apathy, playing with their fingers, and eagerly wishing to be gone. Such a conduct is quite preposterous, and tends to frustrate the great object of such institutions. No address to young people should be continued beyond five or ten minutes at a time, unless the subject be extremely interesting and the attention exclusively fixed upon it. The method of teaching by *Interrogatories*, and interspersing occasional remarks on the different topics, will be found in general the best mode for keeping alive the attention of the young.

Sabbath schools should not be considered as confined to the children of the poor, or of those who are inattentive to the spiritual interests of their offspring, but as embracing the instruction of all classes of society. It is indeed a duty, from which no parent can be exempted, to impart instruction to his children in the principles of religion, and "to train them up in the nurture and admonition of the Lord." But, without neglecting this duty in private, their children might derive important *additional* instruction by attending a public religious seminary. If the system of religious instruction were once improved, and carried to that pitch of perfection of which it is susceptible; and, if that superior intelligence and wisdom, which we hope ere long to see displayed in the department of religion, were to pervade all the details of juvenile instruction, I have no hesitation in asserting that the children of the most learned and intelligent of the community would derive much advantage from attending such seminaries of instruction. Nor should such seminaries be confined to young persons under 12 or 14 years of age, as they too frequently are; but schools should be organised, adapted to persons from the age of 15 to the age of 20, and upwards, in which they may be trained in the higher branches of knowledge connected with religion, and thus be enabled to take more expansive views of the revelations of Heaven, that they may be "thoroughly furnished for the performance of every good work." For the instruction and superintendence of such schools, the study of those departments of sacred knowledge referred to above, will be found an indispensable qualification. In order that properly qualified teachers may be obtained for such seminaries, colleges or academies might be established for their instruction. Evening lectures on the different branches of sacred knowledge and popular science, accompanied with various other mental exercises, might be delivered two or three times every week, to which all might have access who wish to devote themselves to the religious instruction of the young. Various discussions might likewise be entered into relative to the best modes of communicating knowledge and impressing divine truths upon the heart; and *experiments* in the art of instruction might be occasionally tried, by collecting a number of children for this purpose, and observing the effects which different instructors and different modes of teaching produce upon their affections and understandings. In the meantime, before such systems of instruction be established, it might be expedient for the teachers of Sabbath schools in large towns, to meet once week or once a-fortnight for mutual instruction, d for discussing the various subjects connected th their official duties. A library might be formed the best books connected with Sacred History, eology, and general information, to which each of m might have access for the purpose of private dy. By such means the knowledge of our chers would be enlarged, their interest in carrying ward improvements kept alive, and the system of igious instruction would gradually approximate to- rds perfection. To guide the teacher in his se- tion of books on Sacred Literature, he may be re- red to the Rev. E. Bickersteth's "Christian Stu- t," which contains lists of books in the various artments connected with the study of Divine elation, interspersed with a variety of judicious arks.*

Sabbath school teachers will derive much useful instruction n the writings of Mr. Jacob Abbot, Principal of the Mount non School, Boston, particularly his "Young Christian," and *he Teacher*, or Moral Influences employed for the Instruction he Young." He should also peruse "The Mother at Home," other works of the Rev. John S. C. Abbot, of Worster, erica, formerly recommended. In the process of teaching, books published by Mr. Gall on the "Lesson System," will nently be found of great utility. But, it ought never to be otten, that no plans we may adopt, and no books, how- r good in themselves, can be a substitute for the scriptural wledge and general information of the teacher.

man is unfortunate in trade, enfeebled in body, or disinclined to manual labour, it is considered that he may still be sufficiently qualified for a teacher, after having spent four or five months at a seminary of education. If he can read his mother-tongue, write a good text-hand, and has acquired a tolerable knowledge of arithmetic and book-keeping, he is considered as fully warranted to set up the trade of a teacher; and if in addition to these he has acquired some knowledge of Latin and French, he is viewed as moving in the higher rank of instructors. Such opinions, indeed, are now beginning to be reckoned as somewhat antiquated, and many of our teachers are rapidly rising in the scale of intelligence; but it is, at the same time, a fact, that many of our parochial and other schoolmasters are possessed of few qualifications besides those now stated. On the Continent, till lately, the office of schoolmaster, in country villages, was considered one of the lowest employments in society. Even in Prussia, about the middle of the last century, "All that was required of their schoolmasters, who were chiefly mechanics, was, to be able to read, say the catechism, sing tolerably a few well-known psalm-tunes, and to write and cipher a little. Numbers of shepherds, employed in summer time in keeping sheep, during winter assume the office of teachers of youth. The nobility used generally to bestow the place of schoolmaster (if it was at their disposal) on their valets or grooms, as a reward for past services."* In many instances the offices of village barber, fiddler, and schoolmaster, were conjoined in the same person.

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* Report of the Primary Normal School at Potsdam, by F. L. G. Striez.

It may be affirmed, without the least hesitation, that there is no office in general society more honourable and important than that of an instructor of the young, and none on which the present and future happiness of the human race so much depends. But, in consequence of the circumstances now stated, the office has been rendered inefficient for the great purposes of human improvement, and the teacher himself degraded from that rank which he ought to hold in the scale of society. It is not a little unaccountable, that, in this country, no *seminaries* have ever yet been established for training young men for the office of teachers, so that the important ends intended by a system of education may be fully accomplished. A watchmaker, a smith, a mason, a carpenter, or a weaver, serves an apprenticeship of from four to seven years, before he is considered qualified to exercise his profession. A clergyman generally undergoes a course of training for eight or nine years, before he is licensed to perform the functions of the sacred ministry. Even a menial servant, a stable-boy, a cook, or a laundry-maid, must devote a certain portion of time and attention before they are considered as qualified for such occupations. But the office of an instructor of youth is frequently assumed at random. If a man *imagines* he can execute such an office, and publishes an advertisement of his intention, he is believed to be qualified for what he undertakes, although, perhaps, he has never applied his mind to investigate the principles on which instruction should be communicated, nor the objects which education should embrace. Such an *anomaly* in the state of civilized society, in regard to a matter of such vital importance, is a disgrace to the character of an enlightened age, and ought no longer to exist. If we had right views of all the important objects which a system of moral and intellectual education should embrace, and its extensive effects upon all ranks of society, in relation both to the present and the future world, we should at once admit, that an instructor of youth should be a man possessed of almost universal knowledge, conjoined with a high degree of moral probity and fervent piety.

How then, it may be asked, are we to proceed in elevating the teachers in the scale of intelligence, and thus laying a sure basis for an efficient education? The first arrangement, which is obviously requisite, is to establish seminaries or *colleges* for their instruction. In these *Preceptoral Colleges*, as they might be called, such branches as the following might be taught.—1. Arithmetic, Drawing, Algebra, and the Mathematical sciences, particularly those which are more immediately applicable to practical purposes.—2. Grammar, Logic, History, and Christian morals. —3. Natural History, Natural Philosophy, Geography, Astronomy, Chemistry, Physiology, and Vocal and Instrumental Music.—4. Natural Theology, the Evidences of Christianity, Sacred History, Christian doctrines and duties.—To teach these sciences with effect, three or four Professors would be required. They should be taught, not merely by lectures, but by regular examinations and numerous exercises connected with the several topics of discussion; and, where the subjects admit of it, by experimental illustrations. The course should be as popular in its plan and illustrations as the nature of the subjects treated of will admit, and all the discussions should, if possible, be made to bear upon matters of practical utility. Of course, all abstract metaphysical disquisitions, intricate mathematical questions and theorems which are more curious than useful, and all theological speculations respecting mysteries and questions which are beyond the reach of the human faculties to resolve—should be carefully avoided. The great object of these instructions should be, not to make the students *profound* mathematicians, philosophers, or divines—but to communicate to them a clear and comprehensive view of all those subjects of a practical nature which are level to the comprehension of the bulk of mankind, which may present to them objects of delightful contemplation, and which may have a bearing on their present and future happiness. In connection with these subjects, instructions and exercises should be given in *the art of communicating knowledge*, and on the various modes which may be employed to excite the attention, and to convey clear and well-defined ideas to the understandings of the young. The plan and routine of teaching, the various evolutions requisite for preserving order in a school, the divisions of time, the arrangement of classes, the moral treatment of the youthful mind, the punishment of offences, the best methods of impressing upon the heart the truths of religion and the rules of morality, the method of using the different class-books, and every thing else which has a relation to moral and intellectual tuition—should be explained and illustrated in minute detail.

For the purpose of exercising the students in the practical application of these instructions, *two schools should be connected with every Preceptoral College*—one for the *primary* and the other for the *higher branches* of education. Over these schools the professors, though not constant or regular teachers, should be invested with a special superintendence and control. Under their direction, each student, in turn, should be appointed to engage in the business of instruction, so as to reduce to practice the philosophy of teaching. Remarks on the manner in which he executes his office, may be made in private, and hints given by which he may be enabled to correct any of the errors or defects into which he may have fallen. These remarks should have a reference not only to the mode of communicating knowledge, but likewise to the moral dispositions displayed towards the children, and the treatment they receive. While a proper degree of respect and authority is maintained, the young teacher should be taught to address his pupils in the language of kindness and affection, as a father does his children, and to avoid every thing in his manner that has the appearance of being boisterous or domineering. Besides being occasionally employed in scholastic teaching, the students should be frequently exercised in *the art of composition*, and, at certain distant intervals, in delivering lectures of their own composition, to the rest of the students, on any physical or moral subject they may choose to select. This practice would tend to prepare them for becoming public lecturers on the different branches of useful knowledge, in the districts where they might afterwards be appointed as teachers.

All the public exercises of the students, both in learning and in teaching, should be commenced with *prayer*, and a recognition of the superintendence and agency of the Divine Being, and the business of the day concluded in the same manner—a practice which, in this country, has almost fallen into disuse, especially in those seminaries devoted to the promotion of a fashionable education. In short, the whole system should be considered as chiefly of a moral and religious nature—having for its main and ultimate object, not merely the communication of literary and scientific knowledge, but the promotion of moral order and happiness among mankind, and their preparation for the felicities and employments of the world to come. Such a noble object can only be obtained by impressing such views on the minds of the rising teachers, and training them up to habits of universal benevolence and of Christian piety and devotion, that, in their turn, they may communicate the same habits, feelings, and affections, to the young immortals over whose instructions they may be afterwards called to preside.

Every candidate for the office of schoolmaster, previous to being received into such a college or seminary, should be strictly examined as to his mental powers and natural capacity for acquiring and communicating knowledge, his moral principles and conduct, and his leading motives and aims in wishing to devote himself to the office of an instructor. It should be understood that he has previously acquired the elements of a common education—can read his native language with some degree of correctness, can *write a tolerably good* hand, and has acquired a knowledge of the leading rules of arithmetic. For it would be inexpedient to spend much time in such elementary instruction, except in the higher departments of arithmetic, and in demonstrating its fundamental rules. No candidate should be under eighteen or above thirty years of age. From eighteen to twenty-four would, perhaps, be the most eligible period for admission. The course should continue at least three years; and if the student can afford the time and expense, it may be expedient to extend it to four years. About eight or nine hours every day might be employed in public and private studies—and ten months every year, allowing a vacation of a month about midsummer, and another of the same length about Christmas. During the period now specified, under the direction of zealous and enlightened professors, a far greater portion of *substantial and practical knowledge* might be accumulated than is generally acquired at our universities, in a course of instruction extending to more than eight years. Examinations should take place, at least once a-week, to ascertain the progress made by every student, and the degree of attention he bestows on the several branches of study. After having passed through the usual course of instruction, a more minute and extensive examination should be appointed of all the candidates for the office of schoolmaster, on all the branches of instruction, both theoretical and practical, to which their attention had been directed. Those who are approved should receive a certificate, or *licence*, signed by all the professors, specifying the progress they have made, and their qualifications for the art of teaching—which certificate should be considered as a sufficient guarantee to secure their admission as teachers into any vacant schools for which they may apply. Those who are found deficient in qualifications may be recommended to remain another year, or other period, to revise their studies. The teachers who had been inducted into office, previous to the arrangements now supposed, should be enjoined, or at least requested, to attend two months every year at the Preceptoral College for three or four years in succession, in order to finish their education in all those branches which are considered as necessary for an accomplished instructor.

The proper training of teachers lies at the very foundation of a moral and intellectual system of education; and no class of men but those whose minds are furnished with a large stock of general knowledge are capable of carrying it into effect. It may be laid down as a general principle, that no man can communicate to others knowledge of which he himself is not possessed; and consequently, whatever knowledge it may be judged necessary to impart to the great mass of society, must previously exist in the minds of those who are appointed to instruct them. Even the lowest class of schools, such as infant schools, and the details of primary instruction, require men of general knowledge as superintendents and teachers. For it requires more care and attention, more experience and sagacity, and a more intimate acquaintance with the principles of human nature, to direct the opening intellect *in its first excursions* in the path of knowledge, than to impart to it instructions respecting *any* particular science in after-life. *An infant-school teacher*, for example, should be intimately acquainted with the facts of sacred history, with general history, with physical and geometrical science, with the phenomena of nature, and the processes of the arts, with human nature in its different aspects, and with the scenes of domestic life. For, it is from these sources that he is to derive those facts, exhibitions, descriptions, and illustrations, which are requisite to excite the attention, to interest the affections, and to gratify the curiosity of the infant mind. He must tell them stories borrowed from sacred and civil history—he must describe the appearances of nature—he must perform entertaining experiments—he must tell them of other countries, and the manners of their inhabitants—he must describe the conduct of bad children and of good, and have a story at hand to illustrate his descriptions. He must *vary all his descriptions*, experiments, and anecdotes, as much as possible, so that new scenes and subjects may be gradually opening on their view, to prevent that satiety which a frequent repetition of the same topics would necessarily produce. It is evident, then, that no one but a person possessed of extensive knowledge is qualified fully to accomplish such objects.

It is an egregious mistake to imagine, that *the knowledge of a plan* of teaching, or of the *mere routine* of a system of education, is all that is requisite for conducting the instruction of children. This is an error which of late has been too frequently acted upon, and which threatens to strike at the foundation of many of our infant schools. A young man, or a young lady, who has acquired only the elements of a common education, and who has never been in he practice of teaching in any seminary, is sent for ix weeks to an infant school, *to learn the system*, and o witness its movements; after which, they are onsidered as properly qualified, and inducted as uperintendents of infant seminaries, without much ttention being paid to the range of information they ossess. I am aware, indeed, that several worthy ersons of this description have conducted these nstitutions with considerable energy and success, specially when they entered with vigour into the pirit of their office, and felt ardent desires for their wn further improvement. But it would be dangerus to the existence and utility of such institutions o recognise such a practice as a general rule,—lthough, in their first establishment, necessity comelled their patrons to select as teachers, pious and iscreet persons, however deficient in general infornation. For the reasons hinted at above, I am learly of opinion, that an infant school teacher should e instructed in all the branches of knowledge to hich I have already referred as requisite for other nstructors; and on this ground chiefly I rest my opes of the permanency and efficiency of the system f infant training which has been lately introduced. n short, if the world is ever to be thoroughly enghtened and regenerated—if men of all nations and f all ranks are to be raised to the dignity of their oral and intellectual natures, and fitted for "glory nd immortality," it is *essentially requisite* that achers of every description, whether superintendg infant, parochial, or Sabbath schools, or any ther seminaries, be men of decided piety, of the ighest moral attainments, and possessed of as *large a measure of useful knowledge as mortals can acquire.* And, although we may not be able to procure persons endowed with such high qualifications for another generation or two, yet nothing short of such an elevated standard should be ultimately kept in view. Such characters, of course, would occupy a rank and station in society far more respectable and elevated than they have ever yet attained, and be looked up to as the directors of the intellectual and moral faculties, and the best friends and benefactors of the human race.

Four preceptoral colleges at least would require to be established in Scotland, and about six times that number in England, for the training of teachers. Much expense would not be requisite in their erection, excepting what behoved to be laid out in the purchase of a library, a museum, and a philosophical apparatus; which articles would be indispensable in such a seminary, and the more extensive the better. In the meantime, as a temporary expedient, arrangements might be made for establishing such a system of instruction in the different universities and colleges which already exist; as the same class-rooms presently used for the different departments of academical instruction, might, without much inconvenience, at separate hours, be devoted to the system of instruction now proposed. The principal country in which such seminaries have yet been established, is the Kingdom of Prussia, where they are designated by the name of *Normal Schools.* In 1831 there were thirty-three of these schools in full operation, containing from 40 to 100 pupils; that is, one normal school for every 385,660 souls; the population of Prussia, according to the latest census, being 12,726,823. From these seminaries are furnished almost all the masters of the public schools, elementary and intermediate, in the kingdom. The annual expense of these establishments is 110,553 thalers, or £16,583, of which the state contributes £13,260. M. Victor Cousin, in his voluminous and somewhat tedious "Report on the state of public instruction in Prussia," states a variety of minute details in reference to the economy and regulations of these schools, but affords us no clear idea of the *manner* in which the different branches of knowledge are taught to those who are intended to be the future teachers of primary and burghal schools. Although these institutions are, doubtless, the most respectable and efficient that have hitherto been established in any country, yet the range of instruction is not so extensive as that to which I have alluded, nor is the office of a teacher placed in that elevated rank which it ought to hold in society. Teachers in Prussia are still considered as belonging to a grade inferior to that of ministers of the gospel, and are placed partly under their superintendence. But if teachers were once endowed with all the knowledge and qualifications to which I have adverted, they ought to be regarded as moving in a station equal to that of the most dignified clergyman.

CHAPTER XI.

On the Practicability of Establishing Seminaries for Intellectual Education.

To any new proposals for the improvement of society, however just or rational, numerous objections from different quarters are generally started. Difficulties are magnified into impossibilities, and a thousand prejudices are mustered up against innovations on established practices, and in favour of existing institutions. In attempting to establish such seminaries as now proposed, the most formidable objection would be founded on the difficulty of obtaining pecuniary resources adequate to their erection and endowment; and, it is frankly admitted, that a very large sum of money, reckoned not by thousands, but by *millions* of pounds, would be requisite for their establishment and support. A rude idea of the requisite expenditure will perhaps be conveyed by the following statements.

It may be assumed as a fact, that the number of children in any State, from the age of two to the age of fifteen years, is about *one-third* of the whole population; at least this proportion cannot be materially different from the truth. We find that in the States of Massachusetts, Maine, and Connecticut, North America, there is *one* out of every four of the population attending a seminary of instruction. In the State of New York, the proportion of pupils to the whole population is as 1 to 3.9, a greater proportion than is to be found in any other country of the civilized world. The ages of the children attending these schools is, in all probability, from four or five to fifteen or sixteen years; for I presume that the children attending infant schools are not included in this enumeration. But although they were, it is well known that infant schools have not yet been multiplied to such an extent as to furnish instruction for one-fifth of the children who would require to attend these institutions. We may therefore fix on *one-third* as the proportion of the population that requires to be instructed at infant schools, and the higher seminaries of education. This position being assumed, the number of schools required in any city or country may be at once determined. Suppose, for example, we fix on a town of a medium size, such as Dundee, we can easily ascertain the number of seminaries requisite for the instruction of its juvenile inhabitants. The population of Dundee is about 48,000; the one-third of which is 16,000, or the number of individuals that require instruction. Suppose 80 scholars, at an average, to attend each school, there would require to be no less than 200 seminaries erected to supply adequate instruction for such a town. Of these, 50 would be requisite for *infant instruction*, and 150 for the instruction of children from the age of six to the age of fifteen, in the higher branches of education specified in the preceding part of this work. According to a statement made in Parliament, by Mr. Colquhoun, in June, 1834, there is only *one-fifteenth* of the population of this town at present receiving the rudiments of a common education; so that, instead of 16,000 receiving instruction, there are only 3200, and instead of 200 schools, averaging 80 children in each, there are only 40 schools[*] on an average, containing the same number, which is only *one-fifth* of the number of schools which require to be established. *In order to supply Dundee with proper education*, a large building has lately been erected at an expense of about £10,000, which is called "*The Dundee Seminaries*," where about 200 or 300 children receive education. The expense was supplied partly by subscriptions, and partly by funds belonging to the town; and the whole of this sum has been expended merely to afford accommodation for the children of 100 or 150 genteel families! while the great mass of the population has been entirely overlooked. There is no law against the children of the middling and lower classes attending that seminary; but the fees demanded amount, in their case, to an absolute prohibition. With the same sum of money, *ten* commodious seminaries, capable of containing accommodation for 200 pupils each, or 2000 in all, might have been established. It has never yet been stated to the public, *on what principle* education is to be conducted in these seminaries—whether it is to be conducted on the *old system*, or whether a plan of intellectual instruction is to be prosecuted—a most important matter, which ought to have been determined before a stone of the building was laid, or even before a plan of it was selected. For the plan and arrangements of any building intended for intellectual instruction ought to be materially different from those of others, and to have conveniences and arrangements peculiar to itself. But the erection of an expensive and *splendid building*, as an ornament to a commercial town, seems to have been an object of far greater importance in the view of the Committee of Education, than the arrangement of an efficient plan of moral and intellectual tuition. Such are the principles and views of many in this country who profess to be the patrons of education!

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[*] There is a greater number of schools in Dundee than the number here stated, but the average attendance of scholars is *only* 43 in each school.

Let us now consider the number of seminaries which the whole of Scotland would require. The population of Scotland, according to the census of 1831, is nearly 2,400,000, the one-third of which is 800,000. Supposing, as before, 80 children at an average in every school, there would be no less than 10,000 schools required for the efficient instruction of all the youth from two to fifteen years of age—of these 2500 would be infant schools. According to Mr. Colquhoun's statement, "the number of parishes in Scotland is 907, and the parochial schools of Scotland at this moment, 1005;" so that, in Scotland it would be requisite to establish *ten times* the number of schools that presently exist, in order to the efficient instruction of the whole population. On the supposition that there are about 1000 private schools, besides the parochial, or two schools, at an average, for every parish, there would still be required 8000 additional schools, or *five times* the number presently existing. Taking the population of England at 14,000,000, the number of children to be educated will be 4,666,666, and the number of schools, allowing 80 *for each, 58,333,* or nearly six times the number of schools required for Scotland; so that in the whole island of Great Britain there would require to be established *sixty-eight thousand three hundred and thirty-three schools.**

Let us now consider the expenses which would be incurred in the erection of such schools. Estimating the expense of each school at £1000, that is, about £700 for the building and play-ground, and £300 for maps, views, library, apparatus, museum, &c. the neat cost of the schools for Scotland would be *ten millions* sterling. But, if infant schools, wherever they are required, were to be connected with the other schools, so as to be under the same roof, the former on the ground flat and the latter on the upper,—a building consisting of two stories, with suitable accommodation for both departments, could, I presume, be erected for the sum of £700. In this case, the number of erections would be reduced to 7500; and the whole expense would amount to £7,500,000. On the same plan, the number of school-houses required for England would be reduced to 43,750, and the expense would be £43,750,000; that is, about *fifty-one millions* for the whole of Great Britain. If we suppose, what is not improbable, that the number of infant schools, instead of bearing a proportion to the other schools as one to three, as here supposed, would require to bear a proportion of one to two, or half the number of the other schools, the number of school-houses would be reduced to 6666 for Scotland, and the expense to

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* *On* the same data, the number of schools required for the *United* States of America would be above 54,000.

£6,666,000; and for England, to 38,889 schools, and the expense to £38,889,000; so that the whole amount of expenditure for both divisions of the island would be about 45½ millions.

This will appear, in the eyes of many, a most prodigious sum—a sum which we can never hope to realize. It is admitted that the sum is great; but nothing in proportion to the magnitude and importance of the object intended to be accomplished—which is nothing less than to raise the great mass of our population from degradation and misery—to irradiate their minds with knowledge—to inspire them with moral principle and holy affections—to render them happy in this world—and to prepare them for the nobler enjoyments of the life to come;—in short, to strike at the foundation of every moral evil—to counteract the principles of vice and criminality of every kind—and to make the moral world, in all its departments, move onward in harmony and order. Surely, if such objects could be accomplished, we need not grudge the expenditure even of a hundred millions of pounds. And such objects will never be accomplished, nor will the moral world be ever thoroughly improved, till such a system of moral and mental tuition as we have faintly sketched, be universally established. We sometimes talk about the approaching Millennium, and look forward to it as if it were to be introduced by some astonishing miracle, similar to that which caused the chaotic mass at the Mosaic creation to be enlightened, and reduced to beauty and order. But such views are evidently fallacious, and *contrary* to what we know of the *general plan and tenor* of the Divine government;

and they have no other tendency but to unnerve our energies, and to damp our exertions in the cause of human improvement. Throughout the whole range of the Divine dispensations recorded in Scripture, we can point out no miracle that was ever performed, where the operation of the established laws of nature, and the ordinary powers of human agents, were adequate to accomplish the end intended. Man, under the present dispensation, is "a worker together with God," in accomplishing his purposes; and, under the agency of that Almighty Spirit which "moved upon the face of the waters" at the first creation, is able to accomplish all that is predicted respecting the Millennium,—provided his *rebellious will* were subdued, and his moral energies thoroughly directed to this grand object. It is owing to the sin and rebellion of man that this world has undergone such a melancholy derangement, both in its physical and moral aspect; and it will be by the moral and mental energies of man, when properly directed by the Divine Spirit, that the chaotic mass of the moral world will be reduced to harmony and order, and the wastes and barren deserts of the physical world adorned with fertility and rural and architectural beauty, so that "the wilderness and the solitary place will rejoice and blossom as the rose." It is one chief ingredient in the happiness of man, and an honour conferred on him, that he is selected as an agent, under God, for bringing about such a glorious consummation; and there is no man that ought to assume the name of a *Christian*, who is not ready to exert his activities, and to sacrifice a considerable portion of his wealth in this service.

Under the Old Testament economy, the pious Jews brought forward to the service of God their tithes and free-will offerings, their bullocks and rams, and "the first fruits of their increase." When Solomon had dedicated the temple, he offered a sacrifice of 22,000 oxen, and of 120,000 sheep; and when Hezekiah set himself to purify the worship of God, and to promote reformation in Israel, he gave to the congregation a thousand bullocks, and seven thousand sheep—the princes gave a thousand bullocks and ten thousand sheep—and the common people "brought in abundance, the first fruits of corn, wine, and oil, and honey; and of all the increase of the field, the tithe of all things brought they in abundantly, and laid them in heaps upon heaps," for four months in succession, so that Hezekiah was astonished at the voluntary liberality of the people, "and blessed the Lord and his people Israel." When the tabernacle in the wilderness was about to be reared, "both men and women, as many as were willing-hearted, brought bracelets and earrings, and rings, and tablets, all jewels of gold; and every man that offered, offered an offering of *gold* unto the Lord. Every man with whom was found blue and purple, and scarlet, and fine linen, and goats' hair, and red skins of rams, and badgers' skins, brought them. Every one that had silver and brass and shittim-wood for any work of service, brought them. All the women that were wise-hearted did spin with their hands, and brought that which they had spun, both of blue and purple, and scarlet, and of fine linen. And the rulers brought onyx stones, and *stones to be set,* for the ephod and for the breast-plate. Every man and woman brought a willing offering to the Lord, till they had much more than enough for the service of the work which the Lord commanded to make."* These offerings were, doubtless, emblematical of the exertions which would be made, and of the costly offerings which would be brought forward for rearing the fabric of the New Testament church. But what are all the offerings which have been hitherto received for this purpose, compared with the offerings now stated, or with what is requisite to accomplish this grand object! One of the offerings above stated as made by Solomon is equivalent to more than five hundred thousand pounds of British money, which is more than the amount of the funds of the British and Foreign Bible Society, and all its auxiliaries, during the first ten years of their operation. Christians do not seem to have yet recognised their duty, to devote a certain portion of their substance to the service of God and the improvement of man. The pitiful sums hitherto devoted to these objects, compared with what is expended in gratifying pride, and ambition, and luxury, is a libel on the Christian world. If we had right views of the grandeur and importance of such objects, instead of contributing sixpences, shillings, and guineas, we should behold wealthy Christians devoting hundreds, and even thousands a-year, to the improvement of society and the advancement of the interests of religion; and all this could be done by thousands in our country, without depriving themselves of a single comfort or sensitive enjoyment.

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* See Exod. xxxv. 21—30, &c.—2 Chron. vii. 5, xxx. 24, and xxxi. 5—8.

Let us consider, for a moment, the sums we have expended in madness and folly, in the pursuits of ambition and the desolations of war—and we shall then be able to determine whether it be not in our power to raise 40 millions of pounds for the improvement of society. It has been calculated, that, out of 127 years, commencing with 1688, and terminating at 1815, England spent 65 years in war, and 62 in peace. The war of 1688, after lasting nine years, and raising our expenditure in that period 26 millions, was ended by the treaty of Ryswick, in 1697. Then came the war of the Spanish succession, which began in 1702, was concluded in 1713, and absorbed 62½ millions of British money. Without noticing the wars of the Pretender in 1715 and 1745, the next was the Spanish war of 1739, settled for at Aix-la-Chapelle, in 1748, after costing 54 millions. Then came the seven years' war of 1756, which terminated with the treaty of Paris, in 1763, in the course of which we spent 112 millions. The next was the American war of 1775, which lasted eight years, in which crusade against the liberties of mankind, we expended no less than 186 millions. The French revolutionary war began in 1793, lasted nine years, and exhibited an expenditure of 464 millions. The war against Buonaparte began in 1803, and ended in 1815. During those 12 years of extravagance and carnage, we spent the enormous sum of 1159 millions!! 771 of which were raised by taxes, and 388 by loans. In the war of 1688 we borrowed 20 millions; in the war of the Spanish succession, 32½ millions; in the Spanish war of 1739, 29 millions; *in the seven years'* war, 60 millions; in the American war, 104 millions; and in the revolutionary war, 201 millions;—so that the sums borrowed in these seven wars, during 65 years, amounted, in all, to above 834 millions. During the same time we raised by taxes 1499 millions—forming a total expenditure of 2333 millions! which is equal to about £100 for every man, woman, and child in Scotland, or about £600 for every family; and which would be sufficient to establish a system of education, such as we have described, for a population of about 820 millions; or, in other words, for all the inhabitants of the globe. Thus we see, that when ambition and revenge are to be gratified, when tyranny is to be supported, when the human race is to be slaughtered by millions, and when all the arts of mischief and destruction which the demon of war has devised, are to be brought into operation—there is no want of funds to carry such schemes into effect. During the war with Buonaparte 40 millions would have been considered as a mere *item* in the national expenditure, amounting to little more than the war taxes of a single year. And shall it ever be said that such a sum cannot now be raised for counteracting moral evil and human misery, and training our population to "glory and immortality?" That *man who would oppose such a grant*, whatever rank he may hold in society, *ought to be branded as an enemy to his species.* It was but the other year that *twenty millions* were granted for the emancipation of our colonial slaves, and scarcely a voice was lifted up against it; and there is not an individual at this moment that can say that he personally feels any part of the burden. *It* requires only that a similar sum be doubled in order to set in motion a machinery which would, ere long, promote the renovation of the British population, and, ultimately, of all the inhabitants of the globe.

Let us consider, farther, a few more items of our expenditure, which might be saved and appropriated to purposes of human improvement. We have, for example, a *pension list*, the amount of which, for the last half century, would more than accomplish all the objects to which I allude. This list includes the names of many hundreds, nay *thousands* of individuals, who never performed the least service for the benefit of their country, and yet have been permitted to devour thousands, and even millions, of the wealth of the nation. A considerable proportion of these individuals are *ladies*, connected with the nobility and gentry, no one of whom ever wrote a treatise on any subject, promoted a useful invention, or handled a single musket in defence of their country. One of these ladies, since 1823, has pocketed more than £10,000; another, since 1803, above £16,000; another, since 1784, above £28,000; and two ladies, belonging to the same family, £28,096. One family, consisting of four individuals, one of whom is a lady, since 1787, has swallowed up no less than £86,000 of the national resources; and two individuals, belonging to another family, the sum of £60,816. About a dozen individuals, belonging to seven or eight families, have consumed no less than £280,000, wrung from a nation ground down under the load of excessive taxation. What, then, would be the amount of *all the sums* which have been expended on the *thousands* of individuals whose names have been *recorded in the* pension list during the last 50 years!

And, be it remembered, that most, if not all, of these persons are possessed of independent fortunes, are connected with the higher circles of society, and scarcely a dozen of them have performed a single action that entitled them to such remuneration—while many worthy individuals, men of science and philanthropy, who have promoted knowledge and the best interests of society, have been left to pine in poverty, and to pass their lives in an inglorious obscurity.—Another item which might be saved, and devoted to the purpose of mental improvement, is the immense sums which have been expended in *electioneering contests.* In some instances, no less than *forty thousand pounds* have been expended by a single family in endeavouring, for selfish purposes, to obtain for a friend a seat in Parliament, which were wasted in promoting bribery, perjury, broils, contentions, rioting, and drunkenness. In the late elections (January, 1835) we have reason to believe that several millions have been expended. Supposing that there were only 550 contested elections—that only two individuals were opposed to each other—and that the average expense of each candidate amounted to £3000, the whole sums wasted in this manner would amount to *three millions three hundred thousand pounds.* In one or two instances it is asserted, that the expenses incurred by a single candidate were no less than twelve and fifteen thousand pounds.—The expenses, too, connected with *sinecure offices,* which have been bestowed on wealthy individuals, would be nearly sufficient to pay the annual interest of the sum requisite for establishing all the institutions to which I have adverted. It has been calculated, that the incomes of only eleven persons connected with the "Peel and Wellington ministry," along with some of their friends—derived from sinecures, places, and pensions—amount to about £88,000 per annum, besides their official salaries as ministers of the crown. The Duke of Wellington alone—including pensions and interest of grant—is said to cost the country £33,104 a year.—Almost all the money expended in elections might be saved, if proper laws and regulations were adopted, and if electors were uniformly *permitted* to act as rational beings, and to vote according to the dictates of their consciences; and if only half the expenses usually incurred on such occasions were devoted to nobler objects, it would form an important *item* in the expenses requisite for establishing philanthropic institutions. As to sinecures, either in church or state, it is nothing short of barefaced robbery of the national wealth, and an insult offered to an enlightened people, that such offices should exist; and, particularly, that they should be bestowed on those who are living in splendour and luxurious abundance.

Besides the savings which might be made in the public expenditure, there is a still greater sum which might be saved from various *items* in the private establishments of wealthy individuals, which might be devoted to national improvements. The saving of a single bottle of wine a-day, would amount to £50 a-year; the discarding of an unnecessary servant, to nearly the same sum; keeping four horses instead of six, would be a saving of at least £60; and discarding a score of hounds would save more than *a hundred pounds* a-year. There are thousands in our country, who in this way could save £500 a-year, to be devoted to rational and benevolent purposes, without feeling the least diminution of their sensitive enjoyments. There are hundreds of thousands in the middle ranks of life who could save £20 a-year, by discarding *unnecessary* luxuries, in regard to houses, furniture, food and clothing, and feel themselves just as comfortable as before; and there are many more among the lower ranks who could save several pounds every year, which are now wasted either in folly or intemperance, and find themselves richer and more comfortable at the close of the year than at any former period. Let us suppose, what is perhaps not far from the truth, that there are 50,000 individuals, or the $\frac{1}{320}$ part of the British population, who, at an average, have incomes of £3000 per annum, and could devote £300 a-year to public purposes—some much more, and some less; this would amount to *fifteen* millions a-year. There may next be reckoned about 200,000 with incomes, at an average of £300 per annum, who could devote a similar proportion, namely £30 per annum; which would amount to *six* millions. Supposing the population of Great Britain to be 16,000,000, and that only one-fourth of this number, namely 4,000,000, have it in their power to devote a certain portion of their income to the purposes alluded to, there would still remain 3,750,000 of the lower classes, who might be supposed, on an average, able to devote *one guinea* a-year to the same objects, which would amount to nearly four millions. So that *twenty-five* millions of pounds might be raised *annually* for literary, philanthropic, and religious purposes, without any one feeling the loss of any sensitive enjoyment, but, on the contrary, enjoying the purest gratification in beholding improvements going forward, and the plans of benevolence gradually accomplishing. Passing many other considerations of this kind, the only other item of expenditure I shall notice is, that which is spent in the purchase of *spirituous liquors*, which are for the most part devoted to the purposes of *intemperance.* According to an estimate made by Mr. Buckingham and the Committee appointed by Parliament to investigate the state of intemperance, it appears, that, within the limits of Great Britain and Ireland, there is a loss sustained by the use of ardent spirits amounting to nearly "*fifty millions sterling per annum!*" It is stated, that, in the city of Glasgow alone, the sum expended in intoxicating drinks "is nearly equal to the whole amount expended on public institutions of charity and benevolence in the entire united kingdom." This item alone would be more than sufficient for all the purposes of philanthropy and of universal improvement. I shall only add farther, that, were all the *bishoprics* in England reduced to £2000 a-year, the balance would furnish several hundred thousands of pounds a-year which might be devoted to educational purposes; and both religion and education would be promoted by such an arrangement. Still, our bishops would have more than double the income of the Protestant bishops on the Continent, and would likely perform more substantial services than they now do to the cause of religion. Conversing lately with an intelligent Prussian gentleman on this subject, he informed me that the clergy in Prussia of the same rank with vicars and rectors in the Church of England, have an income of from £100 to £250, reckoned in British money; and that the salaries of the bishops are only from £300 to £500, and that they are far more actively engaged in the services of the church than the bishops of England.

Thus it appears, that there is, in reality, no want of resources for establishing an efficient system of moral and intellectual education on the most splendid and extensive scale. Instead of forty millions in all, we could raise forty millions per annum, and would ultimately be gainers by such a sacrifice, in the diminution of crime, the protection of property, the progress of improvement, and the increased physical and mental powers of our population. We have the *power* and the *means* to promote the reformation of society, and even the renovation of the world at large, if we had the *will* to apply them. But this is the grand *desideratum*. To attempt to convince some of our dukes and marquises, our bishops and squires, our fox-hunters, horse-racers, and fashionable gamblers, that it is their duty to contribute of their abundance for such an object, would be as vain as to beat the air, to speak to the hurricane, or attempt to interrupt the dashings of a cataract by the breath of our nostrils. But there is one class of the population to which I would address myself with some hopes of success—namely, members of the Christian Church on whom Providence has bestowed a considerable portion of wealth and influence. Many of these have already come forward with a noble liberality in the cause of missions and of general philanthropy; and they require only an additional stimulus to excite them to still more liberal exertions in the cause of human improvement. But the generality of Christians seem to have forgotten the Divine declaration, " The silver is mine, and the gold is mine, saith the Lord of hosts,"—and that a goodly portion of the wealth which God hath bestowed upon them, ought to be *directly* consecrated to his service. The church itself has hitherto been too remiss on this point, and has not been careful to enforce upon the consciences of its members, their indispensable obligation to devote their treasures to the promotion of religion and of public improvement. How many nominal Christians do we see living under the influence of that " *covetousness* which is idolatry,"—hoarding up hundreds and thousands of pounds, for the purpose either of avarice or ostentation, or under pretence of providing fortunes for their families, while it is with the utmost difficulty that a single guinea can be squeezed from their pockets for any object of benevolence or public utility? Almost every one seems to reason, like the Duke of Newcastle, that he has a right " *to do what he pleases with his own*," not considering that he is responsible to God for the use he makes of his riches, and for every shilling he withholds from his service.

Under the Mosaic economy, the Jews were enjoined to devote a *tenth part* of their substance to the Levites and the Priests, or, in other words, for the purpose of supporting education and the worship of God; for the Levites were the principal instructors of the people. Under the Christian dispensation, the same *proportion*, if not more, ought to be *voluntarily offered for* carrying forward those plans which have a tendency to promote the honour of God and the good of mankind. In certain cases, where a wealthy individual has no family of his own, I conceive it is his bounden duty to devote at least the one-half of his riches to such purposes. Till such views und practices become more general among Christians, we must still look forward to a *distant* period for the arrival of the Millennium. For the purpose of hastening the approach of this glorious era, we are told, in ancient prophecy, that the "kings of Tarshish and of the isles, shall bring presents, and offer gifts"—that "the flocks of Kedar and the rams of Nebaioth," shall be brought as acceptable offerings to the altar of God,—that "the glory of Lebanon, the fir-tree, the pine-tree, and the box together, shall beautify the place of his sanctuary," —and that, "they shall come on camels and dromedaries, and bring *gold* and incense, and show forth the praises of the Lord." Such offerings are expressions of our gratitude to God for the bounties of his providence and the riches of his grace, and of our desire to co-operate with him, in bringing into effect the purposes of his will and the predictions of his word; and no one who is indifferent to such objects ought to assume the character of a follower of Jesus. And, let Christians remember, that by carrying forward such a system of education as that to which I refer, they are using the most efficient means for promoting the extension of the gospel. For the gospel can never be universally understood or appreciated till the young be universally educated. It is owing to the want of education, and the ignorance and vicious habits that result from it, that multitudes refuse to enter within a place of worship, and when they do come, are incapable of fixing their attention on religious objects, or of understanding the truths delivered.

In the above statements and remarks, I have taken for granted, that the government of this or of any other country, might afford, from the national funds, a grant of money adequate to the establishment of all the institutions to which I have alluded—whether infant schools, Sabbath evening institutions, seminaries for the higher branches of moral and intellectual instruction, or preceptoral colleges for the training of teachers. But although no government were to feel the least interest in such institutions, it is *in the power of the people*, and within the range of the *means* they actually possess, to establish them, independently of any extraneous support. This, I trust, will appear from the considerations stated in the preceding paragraphs. Let a general "agitation" be excited on this subject —let the *importance* of it be clearly proved and illustrated—let the *necessity* of doing something more than has hitherto been done in this respect be fully established—let a *conviction* be deeply impressed upon the minds of the influential classes of society, of the *utility* of such exertions for counteracting immorality and crime, for improving the social state of human beings, and preparing them for future felicity —let societies be formed and subscriptions entered into for this purpose—and let a few seminaries of the description referred to, be erected in different districts of the country,—and I have little doubt that a spirit of improvement in this respect would *ere long pervade* the mass of the community. Although many would stand aloof, and even spurn at such movements, yet I trust there is still as much virtue, and liberality, and philanthropy among us, as would lead to no inconsiderable exertions in the advancement of society in knowledge and religion. For my own part, I have no hesitation in pledging myself to devote one-fifth of my annual income, in the first instance, and *one-tenth* of it every year afterwards, for the promotion of the objects now stated; provided three hundred individuals in this or in any other country, shall come forward and pledge themselves to dedicate a similar proportion of their incomes to the furtherance of the same object.* Such is the importance I attach to the subject and the plans under consideration; and I feel confident, from the improvements now going forward and in agitation, that something more extensive and efficient in this respect than has ever been attempted, will, ere long, be accomplished. There is a certain people, at whom many of our British grandees and newspaper critics

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* To prevent misconceptions, it may be proper to state, that the author's income, like that of Goldsmith's "country clergyman," has, for eight years past, scarcely exceeded "forty pounds a-year," exclusive of the house in which he lives; but should it be increased in future years, the same proportion shall be allotted for the object now specified, and a similar proportion shall be deducted from whatever profits he may derive from the publication of the present volume, or any other that may succeed it. Three hundred gentlemen whose incomes average £200 a-year, could, in the first instance, furnish a sum to commence with, amounting to £12,000, and every succeeding year, a sum of £6000 to carry forward their operations; so that, in the course of ten years, £66,000 would be raised, which would be sufficient to establish nearly seventy seminaries, with their libraries, apparatus, and museums. However romantic it may appear to some to expect such sacrifices, the sums now specified are nothing more than what were paid as a *tax* on such incomes during the late war with France; and they are now solicited only in the shape of a voluntary donation.

e disposed to sneer, and upon whom they affect to
ok down with a certain degree of contempt, who, I
n confident, will be the first to move forward in this
ork of improvement. They have already made an
lvance in education beyond that of any other civil-
ed nation, but their system is not yet perfect, nor
niversally extended. The subject, however, is ex-
ting among them almost universal attention, and
henever a hint for farther improvement is given, it
ill, I doubt not, be eagerly seized upon, and speedily
duced to practice. They have lately undermined,
a great extent, the cause of *intemperance*, and they
ave it now in their power to consecrate the millions
f dollars which were formerly spent in degrading
nsuality, to the furtherance of education, and the
use of national improvement.* If Britain does
ot soon arouse herself from her slumbers and move
rward in the cause of education, it will be degrading
the rank she holds in the civilized world, to re-
ect, that she is far excelled in this respect by a re-
ublic on the one hand, and a despotical government†
n the other. The only grant of money that was
ver directly given by the British Parliament for
e promotion of education, was £20,000, which was
nceded by the House of Commons in 1833; and
Ir. Colquhoun stated, in 1834, that "the utmost
hat Scotland required (ultimately) for the supply of
ducation, was a provision of £60,000 per annum."
The proposal of such *pitiful sums* for so grand and

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[*] Here I allude to the *Northern* States of America, particularly
Pennsylvania, New York, New Jersey, Massachusetts, Connec-
cut, and Maine.

[†] Prussia.

extensive an object, is little short of an insult offered to the cause of education, and plainly indicates the imperfect and limited views which are still entertained on this subject. Some of our members of Parliament, when they talk of education, appear to mean nothing more than giving the mass of the community a few general instructions in reading, writing, and arithmetic, according to the old inefficient system which has so long prevailed. The only gentleman who has broached this topic in the House of Commons, and who appears to entertain clear and comprehensive views on the subject of education, is Mr. Roebuck; but, unfortunately, his proposals and his luminous exposition of this subject, seem to have been, in a great measure, unappreciated and neglected.

Supposing seminaries established to the extent which the population of any country requires, a difficulty still remains to be surmounted; and that is, How we shall be enabled to induce parents and guardians of all ranks to send their children to the different schools appropriated for their instruction? It would certainly be eligible, in the first instance, to try the effects of *moral suasion*—to represent to reluctant parents, in the most affectionate manner, the utility and importance of rational and moral instruction, both to themselves and to their offspring—the beneficial effects that would accrue to them even in the present life, and the moral certainty that they would be directed in the path which leads to happiness in the life to come;—and, in every instance, where poverty, or a disinclination to pay the fees, stood in the way, the children should be educated free of expense to the parents. For this purpose, about ten millions more, for Great Britain, would require to be annually raised, for defraying the charge of educating the children of the poor, and affording salaries for the teachers in every case where salaries are required. Few parents would be found who would perseveringly resist the force of such arguments. But, should moral suasion be insufficient for this purpose, a law might be passed, as in Prussia, rendering it imperative on every parent to have his children, of a certain age, regularly attending an appropriate seminary. Such a law would not require to be rigidly enforced beyond the period of a generation, or even a period of twenty years. For the children, once thoroughly trained in morality and religion, and in all the branches of useful knowledge formerly specified, when they arrived at manhood, and had families of their own, would require no persuasion or extraneous excitement to induce them to give their offspring all the education that can possibly be obtained. The advantages they themselves have experienced from instruction, and the relish for knowledge they have imbibed, would be instead of a thousand arguments to impel them to seize upon every mean of instruction within their reach; and any individual who reasoned or acted otherwise, would be considered as a *phenomenon* in society. Ignorance and its usual accompaniments, obstinacy and self-conceit, are the chief obstacles which prevent rational arguments from producing their effect, and which render compulsory measures, in certain cases, expedient. But when a community has once become thoroughly enlightened and moralized, the path of *duty is clearly* perceived to be the path of interest and of happiness, and compulsory enactments are rendered unnecessary.

CHAPTER XII.

On the Utility of establishing Seminaries for universal Education.

VARIOUS insulated remarks on this topic have been interspersed in the preceding pages, and "the advantages which would result from a more general diffusion of knowledge among all ranks," have been illustrated in a separate volume.* I shall, therefore, in this place, advert to only two or three additional considerations.

I. The establishment of schools for universal instruction, while it counteracted ignorance, and improved the intellect—*would tend to the prevention of crime*, and might ultimately extirpate those dispositions and affections which led to it.

It was lately stated in the *Times* newspaper, as the result of a moderate calculation, that there are 50,000 thieves and pickpockets in and about London. According to the statement of an intelligent person, who acted several years as the teacher of the boy-prisoners in Newgate,—there are above fifty committals to this prison every week, on an average, or nearly 3000 in the year. The persons committed, of course, are not all new offenders, as the same individuals frequently return again. But, although on this account we subtract two or three hundreds from this sum, the black catalogue swells to a dreadful amount when we add to it the number of prisoners committed to the penitentiaries, correction houses, and other jails of the metropolis. The trials at the Old Bailey average 2550 in the year, and they are said to be hurried forward with appalling rapidity; the average time given to each case being only eight minutes and a half; though many cannot occupy two, three, or at most five minutes, as the average time now stated includes trials that will last a day, and others that occupy several hours. According to a Report of a Committee of the House of Commons, there were confined in prisons and bridewells, during seven years, ending in 1831, 122,000 persons accused of crimes, or at the rate of 17,428 per annum. Of these, 85,000 were *convicted* of the crimes laid to their charge, so that 12,142 was the average amount of the yearly convictions. It has been estimated, in regard to juvenile delinquency, that more than 1500 boys, in London alone, are employed in thieving, picking pockets, and committing all kinds of petty depredations. It is also found, that crimes, so far from diminishing, are, in this country, regularly increasing. From the Report of a late Committee of Parliament, it appears, that, during the last 14 years they have increased in the proportion of *twenty-four* to *ten*, that is, they have been far more than *doubled* in the course of that short period.

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* "The Improvement of Society by the Diffusion of Knowledge," first published in 1833, of which two editions have been published in Scotland, and four or five in America.

These statements exhibit a frightful view of the *extent and the progress* of crimes. Nor is it to be wondered at, when we consider the present state of education, and the manner in which it is conducted—the principles on which our penal code has been constructed, and the manner in which our criminal laws are executed. Our penal code, throughout all its departments, is deeply imbued with the spirit of *revenge.* To produce *pain* and *disgrace* to the criminal appears to be its principal object; and, in the great majority of instances, it has the effect of hardening and rendering more desperate the persons whom it ought to have softened and reformed. To reform the criminal, to cure him of the moral disease which led him into crime, to impart appropriate instruction to his mind, and to prepare the way for his restoration to society as a renovated character, are circumstances which seem to have been entirely overlooked in the arrangements connected with our criminal legislation. In this respect a dreadful infatuation seems to have seized upon our legislators, implying a deficiency both of wisdom, of humanity, and of benevolence. When certain species of crime are on the increase, laws still more severe are enacted, and put in execution with all the pomp and rigour of authority and revenge. If whipping and imprisonment, toiling at the tread-wheel, labouring in the hulks, and transportation beyond seas, are insufficient to arrest the progress of crime, then *executions* without number are resorted to, in order to sweep the culprits at once from the face of the earth. One enactment after another issues from the source of power; one law comparatively mild is cancelled, and another more severe substituted in its place; a severe punishment is sometimes modified and rendered less severe; the sentence of death is commuted into transportation for life, and a year's labour at the tread-mill for seven years' transportation. Every year new enactments, laws, and regulations, with alterations and modifications of former laws, issue from the legislative department of government; but all is of no avail to stop the progress of immorality and crime. Nor need we wonder at such a result; it is precisely such as we ought to expect from such a mode of legislation as now exists. Our state physicians act nearly in the same manner as the quack, who, instead of striking at the root of a sore which is undermining the constitution, covers it over with a slender skin, and leaves the internal *virus* to gather strength till it break out in incurable ulcers, throughout every part of the system. They attempt to lop off the twigs and branches from the tree of crime, while they leave the root and the trunk to break forth afresh in still greater luxuriance. No efficient *preventive* system has yet been arranged to strike at the root of crime, to prevent its growth, and to make the machinery of society move onward with smoothness and harmony. And, so long as preventive measures are overlooked, and moral training neglected, the severest laws that can be framed will be altogether inefficient to counteract the criminal propensities of the human heart.*

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* America is almost the only country where a considerable degree of attention has been bestowed on this subject. The inhabitants of the United States are greatly in advance of European governments in this respect, having established systems of penitentiary discipline, on enlightened principles,—connected with regular labour and religious instruction—in Auburn, Sing-Sing, Weathersfield, *Pittsburg*, and other places, which have already *been attended with the* most beneficial effects. Of course, several *defects still attach* themselves to these establishments; but

Our legislators and political quacks tell us, that the design of severe punishments is to deter others from the commission of crimes. But even this object they are altogether insufficient to accomplish; for it is well known, that in those countries where punishments are most appalling and severe, crimes are the most frequent. Even the dreadful punishment inflicted in Russia on the pirates and robbers who infested the banks of the Wolga, who were hung alive on hooks fastened into their ribs, and left to pine away in agonizing torture, for days together, and in hundreds or thousands at a time, was insufficient to put a stop to the robberies they were intended to prevent, and it has been lately abolished. If we compare the crimes committed under some of the despotical governments of Europe, with those committed in the United States, where the laws are comparatively mild and equitable, we shall find that there are *much fewer* crimes committed in the latter case than in the former. That capital punishments have little influence in deterring from criminal practices, appears from the circumstance of robberies being frequently committed among the crowds assembled during the time of an execution. The following example, extracted from "The Schoolmaster in Newgate," will illustrate our position:—"One morning a boy," who appears to have been previously in the habit of pilfering, "came into his father's room, and seeing nothing to eat for breakfast but bread and butter on the table, he said, 'What! nothing for

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the plan lately proposed by Mr. Livingston, Secretary of State at Washington, promises to carry such penitentiaries in their principle and operation very near to perfection.

breakfast? Ah! wait a bit.' He then went out, and in a quarter of an hour came back with rump steaks, and a pint of rum, besides having money in his pocket. He had gone out, and stolen a piece of Irish linen from a shop on Ludgate Hill, took it to a buyer of stolen goods, and bought the articles he had brought home, all in the short space of fifteen minutes; and this was not an uncommon thing for him to do, although his parents were not in need. The boy was at length transported, when he was only fourteen years of age. He subsequently detailed to me all his practices, and how he got into crime. His parents resided in a court running out of the Old Bailey, and *he had witnessed every execution which had taken place during his short career.* So much for the effect of executions, as supposed to deter from crime;—indeed *most of the boys engaged in crime appear to have a great pleasure in attending executions.*" The author adds, "These boys are capable of receiving impressions, and are as susceptible of sentiments of gratitude as any lord's son, if the proper treatment were used to draw them out. It is only by cultivating the best feelings of our nature, that any human beings can be improved; all other systems are fallacious, and founded on gross error." The same author informs us, that "There are *whole families* who had never any other calling but that of *theft*—ay, hundreds of such families are now in being in London who have continued the same course, some for twenty, thirty, or forty years. One old woman said, last year, when her seventh son was transported, '*Ha! I know not* what I shall do, now poor Ned is *going; he was a* good lad to me; and though I say it, he was as good a hand at his business as any in London.' 'O, then, he was brought up to business,' I replied. She rejoined, 'God bless you, no! I thought he had told you when you made his brief that ours was a right sort of *cross* family;' adding, 'and so was their father's father, and good ones they all were; now there's little Dick, my eldest son's boy; but I think he'll never make the man his father did—he's dull; besides, he's not old enough quite for any good business yet.' Some of these pathetic mothers will, when warmed with the *cream*, speak of the numbers which have fallen in their families with as much pride and exultation as a Spartan mother of old used to do, when numbering her sons who had fallen in their country's cause. The increase of these families is daily going on, through intermarriages, and other ramifications of family connections; and thus, in a great measure, is the problem solved, as to the increase of crime. This is an epitome of the history of the poor in London and its environs, which might have been given of them forty years ago, and will apply, for ages to come, unless the legislature grapple with the subject at once." Such facts evidently show, that neither severity of punishment, nor any other arrangement yet made by our legislators, is adequate to arrest the progress of crime, and to promote the reformation of society.

The *deficiency of education* in our country, as well as the inefficiency and absurdity of our penal enactments, will account for the increase of crime. Instead of one out of four of the population attending instruction, it is estimated that in England only one out of sixteen, in Scotland one out of ten, and in Ireland but one out of eighteen, are receiving scholastic instruction, which, in most cases, is miserably deficient; "every miserable garret or hovel in which weakness or decrepitude ekes out a wretched subsistence, by abusing the title of teacher—being dignified with the name of a school." But let us come to particulars. According to the "Report of the British and Foreign School Society," for 1833, it is intimated, that in the Metropolis alone, above 150,000 children are growing up without education. In one village, containing 272 families, consisting of 1467 persons, only 562 were found able to read. In other districts, villages are pointed out containing 1000, 1500, or 2000 inhabitants, without any efficient school. Whole families are described as having reached maturity, without any member of them being able to read a single letter; in short, that many thousands of children are growing up in utter ignorance, not only of the elements of learning, but of all moral and religious obligations. In the town of Nottingham, it is asserted, in a circular lately published, that above a *thousand* children of an age suitable for school, are growing up in total ignorance. From a canvass lately instituted by the Committee of the Herefordshire Auxiliary Bible Society, it appears, that out of 41,017 individuals visited, only 24,222, or little more than one-half, were able to read.* In the Report of the British and Foreign School Society, for 1831, is the following statement: "Debasing ignorance prevails to an extent which could not be credited, were it not verified by the closest investigation. The facts which have been elicited respecting the moral and intellectual state of those counties which have been disgraced by riots and acts of incendiarism, are truly affecting, and yet they are but a fair representation of the actual state of our peasantry. Out of nearly 700 prisoners put on trial in four counties, upwards of *two hundred and sixty* were as ignorant as the savages of the desert—they could not read a single letter. Of the whole 700, only 150 could write, or even read with ease; and nearly the whole number were totally ignorant with regard to the nature and obligations of true religion." In the Reports of the same Society for 1832-3, it is stated, "In September, 1831, out of 50 prisoners put on trial at Bedford, only four could read. In January, 1833, there were in the same prison between 50 and 60 awaiting their trials, of whom not more than *ten* could read, and even some of these could not make out the sense of a sentence, though they know their letters. At Wisbeach, in the Isle of Ely, out of 19 prisoners put on trial, only *six* were able to read and write, and the capital offences were committed entirely by persons in a state of the most debasing ignorance."

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* Edinburgh Review, No. 117, Oct. 1833.

Not only in England, but even in *Scotland*, we shall find a glaring deficiency in the means of education. In Glasgow, at the last census, there were, between the ages of 5 and 15, 46,000, that is, between one-fourth and one-fifth of the population at an age to receive education. But, in point of fact, *it is found that there are only one-fourteenth at school*, or 14,285, reckoning the whole population at *200,000*; consequently, there are 31,715 children absent from the means of instruction, who ought to be attending them; and it is found that there are about 6000 living by crime, a large proportion of whom are young. In the Abbey parish of Paisley, which contains nearly one-half of the whole population, only *one-twentieth* attend school. In this town there are 3000 families among whom education does not enter, and where children are growing up wholly untaught. "In Perth, the proportion attending school is under one-fifteenth; and in Old Aberdeen only *one twenty-fifth.* As to the country districts, in the 132 parishes in the counties of Banff, Elgin, and Aberdeen, the average of the whole is one-eleventh; and there are instances of one-twelfth, one-thirteenth, one-fifteenth, and one-twentieth, in the other parishes, taken indiscriminately over the south and central parts of Scotland. In a parish in the county of Berwick, the proportion at school is one-fifteenth; in a parish in the county of Dumbarton one-thirteenth; and, lest it should be surmised that this deplorable state as to education exists only in manufacturing parishes, where a dense population has recently arisen, it is proper to state, that several of these instances are in *rural* parishes; the two worst instances—those in the counties of Banff and Aberdeen—being entirely *country* parishes. In the 143 Highland parishes, out of 500,000, there are 83,000 who cannot read, and have no means of learning; and there are 250,000 who cannot write."*

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* The above facts are abridged from Mr. Colquhoun's statements in Parliament respecting education in Scotland—who deserves no little praise for the labour and attention he has bestowed on the subject.

Such is the deplorable deficiency of education even in Scotland, which has been so much lauded on account of its parochial establishments, and the intelligence of its population; and therefore we need not wonder that, even here, immorality and crime have of late been on the increase.

What is the remedy, then, which will counteract, and ultimately subvert the moral evils to which we have adverted? I answer, without the least hesitation—*Intellectual, Moral, and Religious instruction, universally extended*—not the *form* of education without the *substance*, not merely pronunciation, cyphering, and conning memorial tasks, not merely committing to memory formulas, catechisms, speeches, psalms and hymns; but the imparting of *clear and comprehensive ideas* on all those subjects on which man is interested as a rational, social, and immortal being. There has never yet been a complete and efficient system of education, of this description, established in any country under heaven; the improvements lately introduced in the United States, Prussia, Wirtemberg, Bavaria, and other places, being only approximations; and hence, society, in such countries, though greatly meliorated, is not yet half moralized or reformed.—That such a system of instruction, universally established and judiciously conducted, would raise the tone of moral feeling, and counteract criminal propensities, no sane mind will presume to call in question. We find, from the facts above stated, that *ignorance* and *crime* are *intimately connected*—that those who rendered themselves amenable to the laws of their country had been allowed to grow up without instruction—and that "the capital offences were committed entirely by persons in a state of the most debasing ignorance." Indeed, *all* the cases stated may be considered as cases of absolute ignorance; for although some of the criminals alluded to "knew their letters, *they could not make out the sense of a sentence;*" and the bare circumstance of being able to *read*, or, in other words, to *pronounce the sounds* of words and characters, is unworthy of the name of education, though it is too frequently dignified with this appellation.

If ignorance, then, with all its usual debasing accompaniments, be one of the chief sources of crime, we have only to remove the *cause* in order to prevent the *effect.* Wherever the mind has been *thoroughly* enlightened and *judiciously* trained from infancy in moral habits, the tendency to criminal practices has been at the same time subdued. "Train up a child in the way he should go, and when he is old he will not depart from it." I question if a single instance can be brought forward inconsistent with this position.* This likewise holds true in the case of nations as well as individuals—in proportion to the *extent* and the *efficiency* of the means employed. In Ireland, there is more crime than in England, and in England more than in Scotland; and this is corresponding to the proportion of the means of instruction in the respective countries. In the Northern States of America, particularly New England, where almost the whole population is well educated, there is perhaps less crime and misery than in any other country in the world.* In regard to New York, it is worthy of remark, in this point of view, that there was no conviction for murder or any other capital offence, in that State, comprising two millions of inhabitants—during the year 1832. The number of schools in New York, that year, was 9270; the number of scholars about 500,000, besides those attending academies and colleges; and the total expenditure for common schools the same year, 1,126,486 dollars, or £250,329; which is more than *four times* the sum which Mr. Colquhoun says Scotland would require for the supply of education, although its population exceeds that of New York by 400,000. In Prussia, since an improved system of education was established in that country, it is found that crimes have been greatly diminished, and that newspapers, magazines, and other publications, have, in many places, increased more than tenfold. Were we possessed of accurate statistical statements of the progress of education and of crime in the different countries of Europe and the States of America, I have no doubt it would clearly appear, that crime is regularly diminished nearly in proportion to the progress of an enlightened and *efficient* education. But let no one presume to affirm that the inhabitants of any country are *educated*, when little more than the *form* of instruction is imparted, and where less

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* See page 182.

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* In reference to the city of Boston, the capital of New England, Mr. Stuart, in his "Three years in North America," has the following remarks:—"This city is clean and well paved, and seems to be not only entirely free of beggars, but of any population that is not apparently living comfortable. I did not observe a single individual in the streets of this city who was not well apparelled, nor an individual of what we call the lower orders."—"At Boston there is not the semblance of idleness and filth among the people anywhere. All are, or seem to be, in the full enjoyment of the necessaries of life; and all busy, active, and employed. What a contrast, in these respects, between this city and the city of Dublin, which, in July 1827, I saw crowded with beggars almost naked, even in the heart of it; and, on the arrival of a mail-coach in Sackville Street, scrambling for the few halfpence which the passengers threw among them."—In 1830, the number of schools in Boston was 235, of which 80 were public, and 155, private schools, besides about a dozen academies and classical schools, several of which are exclusively devoted to *female* pupils. The total expense of the schools in 1829, for tuition, fuel, books, &c. was 196,829 dollars, or about £43,739, which is more than double the grant for education voted by parliament in 1833, to be distributed over the whole of Britain.—Where education is so general and well-conducted, almost every individual is a reader. Hence the number of publications in Massachusetts, Connecticut, &c. exceeds that of any other country. In Boston, there are regularly published 10 daily newspapers, 7 twice a-week, and 26 weekly, being 43 in all—besides Magazines, Reviews, and Religious and Literary Journals of various descriptions; of which there is *one* published every half year, 7 every quarter, 5 every two months, 3 every fortnight, 22 monthly, and 9 annually, including 6 almanacs; being in all, 47 periodicals, in a city containing only 62,000 inhabitants. These periodicals, it is evident, would never be published and sold, unless the inhabitants at large were universally given to reading.—And where a habit of reading useful publications is general, the hydra of *Crime* will seldom lift up its heads—the mind being pre-occupied with nobler pursuits. As an evidence of the immense quantity of literary works distributed in these States, I was lately informed by a literary correspondent in Connecticut, that one of the printers in Hartford, the capital of that State, containing only 8000 inhabitants—had printed, during the year 1833, of *Geographies alone*, great and small, no less than 200,000 copies.—The general state of education in *Massachusetts* is as follows. The whole number of towns in the State is

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305, and the whole population 610,014. The population of 99 towns from which returns were lately made is 201,681. Of these 57,866 attended public or private schools, which is equal to the proportion of 1 to 3½; or three times the number in proportion to the population of those attending schools in Scotland. In addition to which it ought to be considered, that the education in New England is far more efficient and comprehensive than in this country.—The above statements are selected from the "American Quarterly Register" for May 1833, and the "American Almanac" for 1834.

than *one-fourth* of the population is actually instructed.

Had I not already dwelt too long on this topic, it might have been shown, that the *expense of punishing crime*, and the losses of property to society in consequence of its prevalence, *would be more than sufficient to support an efficient national education.* It has been estimated, that the expenses attendant on the imprisonment, the conviction, and the punishment of criminals, will average more than a hundred pounds for each individual. According to a statement formerly made, there are yearly committed to jail 17,428 persons accused of crimes. At £115 for each, the annual expense of the whole would amount to more than *two millions.* If we add to this the interest of the money expended in the erection and repair of jails, penitentiaries, bridewells, hulks, and houses of correction—the salaries of jailors, judges, bailiffs, and all the other officers connected with criminal courts, together with the fees of pleaders, attorneys, &c. we shall have at least other *four* millions. If we were to make a rude estimate of the loss of property sustained by criminal depredations, the amount would be enormous. "I have been assured," says "The Schoolmaster in Newgate," "that £200 and even £300 in a week, has been obtained by one man and a boy, merely by abstracting the money in shops which is kept in tills and desks." But supposing, on an average, only £120 *per annum*, as the amount of depredation committed by each thief and pickpocket—the number of such characters in London being estimated at 50,000, the loss sustained by such depredations will amount to *six* millions; and if we reckon the depredations in all the other parts of the kingdom to amount only to the same sum, we shall have *twelve* millions of loss sustained by depredations on property. The police establishment in London costs above £200,000 a-year; and if we take into account the expenses connected with all the other police establishments of the nation, which may be reckoned at seven times that sum, we shall have an amount of £1,400,000 on this head:—whereas, less than one-fifth of that sum would be sufficient for the preservation of order among a *renovated* population. Many other items might have been stated, but the above sums, amounting to nearly *twenty millions*, would be more than sufficient for carrying forward a system of national education on the most ample and splendid scale. It is therefore madness in the extreme to attempt any longer to repress crime by such a machinery as has hitherto been employed, while we neglect the only efficient means by which its operations may be controlled, and its principle extirpated. The very principle of *economy*, if no higher motive impel, should induce us to alter our arrangements, and to build on a new foundation. It was lately said to the public of Edinburgh, with great propriety, when solicited to contribute to the erection of a school,—"Give your *pence* to infant schools," (I may add, to well conducted seminaries of all descriptions,) "and save your *pounds* on police establishments, jails, bridewells, transportations, and executions." In this way we should be enabled, at the same time, both to improve *society*, and to increase our national *resources.*

II. Such an education as now proposed, universally extended, would improve the mental faculties, and *raise the character of man far beyond the level to which it has hitherto attained.* During almost the whole of the past periods of this world's history, the human faculties have been seldom exerted with vigour, except for the purpose of promoting mischief, procuring the means of animal subsistence, or indulging in childish and degrading amusements. Even in the present *enlightened age*, as it has been termed, what are the pursuits which fascinate and absorb almost the whole attention of the higher classes of society? Horse-racing, fox-hunting, prize-fighting, gambling, duelling, coach-driving, "steeple chases," slaughtering moor-fowl "o'er hill and dale," masquerades, theatrical amusements, and dissipations of all kinds. And what are the employments of a great proportion of the lower ranks, besides their stated occupations? Cock-fighting, gambling, sauntering about the streets, indulging in drunkenness, licentiousness, and cruel sports and diversions—while they remain in ignorance of all that is grand and beautiful in the Creator's works, and feel no relish for intellectual enjoyments. Even the acquirements and pursuits of professed *Christians* are far inferior to the standard of intelligence and morality which religion prescribes; for we behold, even among this class, ignorance of most subjects with which every rational and religious being ought to be acquainted, combined with hatred of all religious sects but their own, with wealth-engrossing dispositions, and "covetousness, which is idolatry."

What a pitiful picture of ignorance and degradaion would the inhabitants of this world present to he view of intelligences of a higher order! Were an inhabitant of the planet Saturn to wing his flight o this globe of ours, and were he capable of communicating his sentiments in language intelligible to man, we should expect to learn from him a minute detail of the history and geography of the globe to which he belonged, of the peculiar phenomena of nature in that region, of the various aspects of the moons, the diversified appearances of the magnificent rings which encircle that world, and descriptions of he different scenes of nature, the operations of art, he sciences cultivated by its inhabitants, and the plan of God's moral government among them; and, doubtless, our curiosity to become acquainted with he physical and moral arrangements of another world, would be abundantly gratified. But were an nhabitant of our globe, from among the *lower* or even from among many of the *higher* classes, to be transported to one of the planets, what account could *he* give of the arts and sciences, of the history, statistics, and natural scenery of our world? What could *he* say of its continents, rivers, islands, oceans, and volcanoes; its mountain scenery, and the properties of ts atmosphere, of the variegated surface of the moon, and the peculiarities of its motions, of the history of ts inhabitants, or the progress they had made in knowledge? What description could *he* give of the rts and inventions of modern times, of the construcion of the instruments by which we view distant objects, and by which we penetrate into the scenes invisible to the unassisted eye, of the principle of air-*alloons, steam-engines*, airpumps, mechanical powers, electrical machines, or galvanic batteries? Above all, what could he tell them of the moral dispensations of the Creator towards our world, and of what is contained in the revelations of his word? He could perhaps tell them that there were hills, and rivers, and four-footed beasts, and men that were employed in killing each other; but could convey no precise idea of any thing in which this world differed from that to which he had been transported. He would be looked down upon with pity as a kind of *lusus naturæ*, unworthy of the name of a *rational* being. Of 800 millions of men that people our globe, there are at least 750 millions of this description, who could give little more information respecting the peculiarities of our world to the inhabitants of another planet, than they could receive from an elephant or a beaver, if such creatures had the faculty of communicating their ideas.

Such is the present character of the great majority of this world's population—and how is it to be elevated to a standard befitting a rational and immortal intelligence? Only by the universal extension of such an education as that, the outlines of which we have faintly sketched. The communication of *knowledge* is the first part of that process by which the human character is to be raised and adorned, as *light* was the first agent employed in the arrangement of the material creation; and this knowledge must, in every instance, be conjoined with religious principle and moral conduct, otherwise it will only prove the intelligence of demons. Man, although, in one point of view, he is allied to the beasts of the field, in another, he is allied to superior natures, and even to the Deity himself; and therefore ought to be rendered fit for associating with such intelligences—for receiving from them communications of knowledge and felicity, and for imparting to them similar benefits in return. If man is destined to a future world, as we profess to believe, he will, doubtless, mingle with beings of various orders during that interminable existence which lies before him; and his *preparation* for such intercourses will, in a great measure, depend on the training he receives, and the principles he imbibes, during his sojourn in this sublunary sphere. There is no *essential* difference between men on earth, and the highest created beings in any region of the universe, but what consists in the degree of *knowledge*, and the degree of *holiness*, or moral perfection, which they respectively possess. When man is endowed with a competent measure of these qualifications, he is fitted for the highest degree of social enjoyment, both in this life and in the world to come; and therefore, in so far as we refuse to lend our aid to the cause of universal instruction, or set ourselves in opposition to it, we do every thing in our power to debase the character of our fellow-men, to prevent them from rising in the scale of intelligence, and to interpose a barrier to their present and future happiness.

I might likewise have shown the utility of universal education, from the tendency it would have to induce the mass of mankind to lend their aid in promoting every scheme which tends to advance the improvement of the social state of man; the cultivation of the soil, the forming of spacious roads and foot-*paths*, *canals*, rail-roads, and bridges; the uni-

versal illumination of towns, villages, and the
try at large, by gas-lights and other contriv
the establishment of expeditious conveyances in
direction by sea and land; and the carrying f
to perfection the various arts and sciences.
I have elsewhere adverted a little to some of
objects, I shall only add, in the meantime, t
value and security of property in any count
pend, in a great measure, upon the intelligen
morality of its population. If the whole m
society were thoroughly enlightened and mor
we should no longer hear of "strikes" takin
among workmen, of servants embezzling the pr
of their masters, or of combinations being e
into in opposition to the interests of their emp
Every man's house would be his castle; a
should lie down to rest in the evening in perf
curity from the incendiary, the insidious pilfer
the midnight depredator. This security has a
been partially felt in those countries where
lightened education is general. Mr. Stuart,
describing the New England States, remark
"robberies very seldom happen in that countr
that the doors of houses are frequently left *unlock*
ing night"—the inhabitants having little fear of
depredations or annoyance from their neighbo

III. Intellectual and religious education, u
sally extended, in combination with every other
tian exertion, would be more efficient than any
arrangement hitherto made for hastening the ap
of the *Millennium.* That a period is about to
when knowledge, holiness, and joy, shall distin
the inhabitants of the world in a degree far

what we have yet experienced, is clearly pre-
d in the oracles of inspiration. By these oracles
are informed, that "*All the ends of the world*
l remember and turn to the Lord, and all the
reds of the nations worship before him"—that
e earth shall be full of the knowledge of Jehovah,
he waters cover the seas,"—and that "all shall
w him, from the least to the greatest,"—that
e glory of the Lord shall be revealed, and all
n see it together,"—that "the heathen shall be
n to Messiah for his inheritance, and the utter-
t ends of the earth for his possession,"—that
l kings shall fall down before him, all nations
e him, and the whole earth be filled with his
y,"—that during the continuance of this happy
"wars shall cease to the ends of the earth, and
nations shall delight themselves in the abund-
e of peace,"—that "the earth shall yield her
ease, and be fat and plenteous,"—that the inha-
nts "shall build houses and inhabit them, and
t vineyards and eat the fruit of them, and shall
enjoy the work of their hands,"—that "they
ll go out with joy and be led forth in peace,"—
t "there shall be nothing to hurt or destroy,"
that "righteousness and praise shall spring forth
ore all nations." In what manner, then, may we
ceive that such predictions will be accomplished?
e we to suppose that, by one appalling act of
nipotent power, the wicked will at once be swept
m the face of the earth, and that the physical
ect of our globe will be instantly changed and re-
ated by the *same* Almighty energy, as at the first
tion? Or, are we to conclude, that this auspi-

cious era will be introduced in consistency with
established laws of nature, and by the agency
human beings, under the influence and direction
the Divine Spirit? For the former supposition
have no evidence whatever in any of the intimati
given of this event in the Scriptures, and it wo
be inconsistent with all that we know of the by-p
operations of the Divine Government; as might
clearly shown, by an induction of facts and argume
of various kinds, were this the proper place to en
into such a discussion. If, then, we admit the lat
conclusion, it will follow, that the Millennium
be introduced by a concentration of the moral
intellectual energies of mankind directed to this gr
object—by following out those plans which are c
culated to promote the renovation of the world—
the consecration of a far greater proportion of
treasures for this purpose than has ever yet be
thought of—and by directing our eyes to the Supre
Disposer of events for that wisdom which is "p
fitable to direct us" in all our arrangements, ackno
ledging Him as the original source of all our acti
ties, and who alone can render them successful.

What, then, are those means by which the mo
world may be renewed "in knowledge and holine
after the image of Him who created it?" Undou
edly the *efficient* training of the young from the
liest period of infancy to the age of manhood, is o
of the first and most important steps to the thorou
renovation of the world—a subject which has hithe
been egregiously trifled with, and almost overlook
in our Christian arrangements. We have all alo
laid too much stress upon the mere preaching of

gospel, or, in other words, the delivery of a piece of human composition to a mixed multitude, the one-half of whom are unprepared by previous instruction either to understand or to appreciate its truths; and hence the comparatively feeble effects which have been produced on the moral characters of men; hence the confused conceptions entertained of Divine truth; and hence it happens, in certain cases, that the truth delivered rebounds from the heart like a ball of cork from a wall of adamant, because it has not been previously prepared for its reception; and, to palliate our remissness and inactivity, we have sometimes had the presumption to ascribe this effect to the withholding of Divine influence. Let it not, however, be imagined that I mean to discourage the preaching of the gospel. No: nothing is farther from my intention. Let the gospel be proclaimed still more extensively, and with far more energy and pathos than have ever yet been displayed; and let missionary exertions, and every other Christian activity now in operation, be carried forward with still greater vigour. But let our chief attention be directed to the *preparation* of the minds of the young for the reception of the truths of religion—to invigorate their rational powers and their principles of action, and to counteract, on the first appearance, every evil propensity,—and then we may expect that the "Word of God" will soon run like a mighty river through the world, and "have free course and be glorified," enlightening the understanding, purifying the affections, and "bringing into captivity every thought to the obedience of Christ." An intellectual, moral, and religious* education, universally extended, constitutes the *essence* of the Millennium; it is one of its chief characteristics, and will form the foundation of all the happiness which will then be enjoyed; for it is one of the distinguishing circumstances connected with that period, that "all shall know Jehovah, from the least to the greatest." But how can we expect that the superstructure can be reared, if the foundations be not laid, or that "the desert will rejoice and blossom as the rose," while the hand of industry is never applied to root up the briers and thorns, and to cultivate the soil?

Is it inquired, *when* we may expect the Millennium to commence? I reply, *just when we please.* Are we *willing* that it should commence in the present age? We have the *means* in our power, if we choose to apply them. In the course of *forty years* from this date the Millennium might not only be commenced, but in a rapid progress towards the summit of its glory,—*provided we are willing at this moment to concentrate all our moral and intellectual energies, and to devote all our superfluous wealth,* or at least a tenth part of it, *to the furtherance of this object.* Nay, in the course of half that period, we should have a generation rising up in knowledge and holiness, far superior to any race which has appeared in the world during the ages that are past. For, were we just now to commence a universal system of infant instruction, and continue the course through all the higher departments formerly specified—in the course of twenty years all the children who are now about two years of age (if continued in life) would have arrived at the age of *twenty-two*, in an enlightened and moralized state, and would form the most numerous and influential portion of the population, and give a tone to all ranks of society. Even the *physical aspect* of the globe, within the course of another century, might be *renovated*, and adorned with every thing that is beautiful and sublime. The wealth that has been expended in the madness of *warfare*, even by *civilized* nations, during a century past, had it been appropriated to philanthropic improvements, would have been sufficient to have cultivated all the desolate wastes of our globe, to have made its wildernesses like Eden, and its deserts "like the garden of the Lord,"—in short, to have transformed it into something approaching to a terrestrial paradise. We have it in our power to accomplish all this in the century to come, if we are *willing* to devote our energies and our treasures to the purposes of philanthropy and general benevolence.

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* In this and various other parts of this work, I have used the words *moral* and *religious*, in compliance with common usage, as if they conveyed distinct ideas. But I conceive that the ideas they express are so intimately connected that they can never be separated. There can be no true morality but what is founded on religion, or the principles of Christianity; and religion can have no real existence but as connected with the *morality* of the *Bible*—the promotion of which, in principle and conduct, is the great object of all the revelations of Heaven.

But, is it of any avail to address the majority of our fellow-men on this subject? No: we might as soon speak to the tides and currents of the ocean, and expect them to stop at our command, as to expect that the current of licentiousness, folly, ambition, and avarice, in which three-fourths of mankind are carried headlong, will stop its course, and diverge *into the channel of* religion, philanthropy and beneficence. But I trust there is still a select band of Christian philanthropists who only require to be convinced of the necessity of extraordinary exertion, and to receive an additional stimulus, in order to excite them to a godlike liberality. What sacrifice would it be to a man who has £500 a-year to devote annually £100 to the purposes of religious and intellectual improvement? to another who has £1000 a-year to devote £300, and to another who has £10,000 to allot £4000 *annually* for the same object? It would not deprive any one of them either of the necessaries or of the luxuries of life, or of any thing that contributes to comfort, honour, or sensitive enjoyment. It is now high time that the *sincerity* of a profession of Christianity should be tried by the test of pounds, shillings, and dollars. We have beheld numerous instances of ministers and others aspiring after the highest stations and the largest salaries, in order to increase their incomes. Let us now see what sacrifices they will make of the wealth which God has given them for the purpose of promoting his glory in the world. Let us see whether God or Mammon, whether the promotion of the best interests of mankind or "the lust of the flesh and the pride of life," rule supreme in their hearts. That man who refuses to come forward with his wealth, when it is proved to be requisite for the purposes alluded to, ought not to assume the name of a *Christian.* He has never felt the influence of that divine maxim of our Saviour, "It is more blessed to *give* than to receive." He virtually declares, that "laying up treasures on earth," providing fortunes for his family, keeping up a certain rank in society, and living in luxurious abundance, are matters of far greater importance than the approach of the Millennium and the regeneration of the world. If a man is in doubt with respect to the existence of religious principle in his soul, I know not a better test than this, by which to try the sincerity of his Christian profession: Is he willing, at the call of God, to give up a portion of his possessions to His service, and even "to forsake all" to prove himself "a follower of Christ?" There is a certain class of religionists who are continually whining about the low state of religion, and the wickedness that prevails among all ranks; and there is another class who are frequently talking about the *calculations* that have been made respecting the *predicted period* of the "latter-day glory;" but when you ask any of these classes to put their hands in their pockets, in order to supply means for improving society and hastening the approach of that glory, they will rebound from you as the north poles of two magnets rebound from each other, and will tell you, with an air of apathy and spiritual pride, 'that the spirit is not yet poured out, that man can do nothing of himself, and that God's time is not yet come.' If Christians were universally to act upon such views, the predicted glory of future ages would never be realized. "It is not for us to know the times and the seasons which the Father hath reserved in his own power;" but we know that it is our *present duty* to consecrate to the service of God and the good of mankind all the powers and faculties with which we are invested, all the energies we are *capable of* exerting, and all the treasures *not essential to our comfort*, to carry forward the build-reward. "For they that be wise shall shine as the brightness of the firmament, and they that turn many to righteousness as the stars for ever and ever."

It is said, that when the town of Calais, after a siege of twelve months, wished to surrender to Edward III. he demanded that six of the most considerable citizens should be sent to him, carrying the keys of the city in their hands, bareheaded and barefooted, with ropes about their necks, to be sacrificed to his vengeance. This cruel demand threw the inhabitants into a state of unutterable consternation, and they found themselves incapable of coming to any resolution in so distressful a situation. At last, one of the principal inhabitants, Eustace de St. Pierre, stepped forth, and declared himself willing to encounter death for the safety of his friends and companions; another, animated by his example, made a like generous offer; a third and a fourth presented themselves to the same fate, and the whole number was soon completed. Shall such a sacrifice as this, extending even to life itself, be cheerfully made; and shall we not find as many Christians in every town willing to sacrifice the third, or fourth, or at least the tenth part of their property for the good of mankind, and the regeneration of society? The offerings, in ancient times, for the service of God, far exceeded any thing that has yet been attempted under the Christian economy. The gold and silver alone, offered for the rearing of the tabernacle, amounted to upwards of £300,000 of the present value of British money, besides the brass, the shittim wood, the linen, the embroidered curtains, the onyx stones and jewels, and the regular tithe which every

Israelite annually paid of all that he possessed. When the temple was about to be erected, David, along with his princes and captains, contributed no less than 108,000 talents of gold, and 1,017,000 talents of silver, which amounted to more than 900 millions of pounds sterling; and the expense of the sacrifices offered on the occasion amounted to several hundred thousand pounds.—1 Chron. xxii. 14.—xxix. 3—9. These offerings were a tribute of gratitude to God, the original bestower of every enjoyment; and hence, David, when he blessed the Lord before all the congregation, declared, "All things come of thee, and *of thine own have we given thee.* All this store we have prepared to build an house for thy holy name cometh of thee, and *is all thine own.*" The *tithes*, or tenth of their income, were designed as an acknowledgment that they had received their estates from his free gift, and held them by no other tenure but his bounty. They were a kind of *quit-rent* annually paid to the Great Proprietor of the soil, for the maintenance of his worship, and the instruction of the people. And why should not the estates of Christians be viewed in the same light, and a similar portion of them be devoted to the same purpose? The tenth of the incomes of the inhabitants of Britain would annually amount to *many millions;* yet all that has been collected by the British and Foreign Bible Society, the most popular of all our religious institutions, during thirty years of its operation, is only about *two* millions of pounds. Notwithstanding, however, the general apathy which *exists on this* subject, I am disposed to indulge the *hope, that, ere long,* thousands of Christians in different parts of the Church, will come cheerfully forward and consecrate, not merely a tenth, but in many instances, *one-half* of their substance, for carrying forward the designs of Providence for the reformation of the world. Such offerings are nothing more than what is requisite for accomplishing this grand object; and when such a spirit of liberality becomes general in the Christian Church, we may confidently expect that the happy era is fast approaching, when the light of divine truth shall shed its radiance on every land —when "The glory of Jehovah shall be revealed, and all flesh shall see it together—when the wilderness and the solitary place shall be made glad, and when righteousness and praise shall spring forth before all nations."

The inhabitants of New England, I am confident, will be among the first to set such a noble example to every other nation. From small beginnings, they have advanced more rapidly in religious and intellectual improvement than any other people under heaven; but they have not yet attained the *acme* of improvement, "neither are they already perfect;" but "must press forward to the mark," without "looking back" with self-complacency on the advancement they have hitherto made, and "stretch forwards toward those things which are before." There are, perhaps, few circumstances in the history of mankind more remarkable than the landing of the persecuted *pilgrims* of New England on the rock at Plymouth, and the important consequences which have been the result of the settlement of that small and distressed colony. About a hundred individuals, driven from their native land by the demon of persecution, landed at that point, near the middle of winter in 1620, with prospects the most dismal and discouraging—fatigued by a long and boisterous voyage—forced on a dangerous and unknown shore on the approach of the most rigorous season of the year—surrounded with hostile barbarians, without the least hope of human aid—worn out with toil and suffering, and without shelter from the rigour of the climate; so that, in the course of three or four months, forty-six of their number were carried off by a mortal sickness. Yet this small band of Christian heroes laid the foundation of all the improvements in knowledge, religion, liberty, agriculture, and the arts, that distinguish the New England States; which now contain a population of nearly two millions of souls. Through their instrumentality, and that of their successors, "the wilderness has been turned into fruitful fields," hundreds of cities and towns have been founded, colleges and splendid temples have been reared, civil and religious liberty established on a solid basis, the education of the young, and mental and moral improvement, promoted to an extent beyond that of any other nation upon earth. These circumstances, furnish a proof of what a small body of persevering and well-principled men can achieve in the midst of difficulties and discouragements, and a powerful motive to excite us to engage in every holy activity. And I trust, the decendants of these pilgrims, animated by their noble example, will rise to still greater heights of intelligence and virtue, till knowledge become universal—till moral evil be completely undermined—*till* "*righteousness* run down their streets like a river," and till the influence of such moral movements be felt among all the families of the earth.

CHAPTER XIII.

Principles on which a National System of Education should be established.

In attempting to establish any new system, however excellent, many obstacles and impediments present themselves, arising from the feelings, interests, and preconceived opinions of mankind. In establishing such a system of education as we have described, one great obstacle would arise in this country from the interests and conflicting opinions of religious sectaries. Religion, which was intended by its Author to introduce harmony, and to promote affection among mankind, would, in all probability, be brought forward to interrupt the noblest efforts of benevolence in the cause of universal instruction. Every sectary would be apt to insist on its peculiar dogmas being recognised, and especially those which are môre directly patronised by the State would prefer a double claim for the superintendence and control of all the arrangements connected with the education of the young. Such conflicting elements and party interests have already prevented the establishment of institutions which might have proved beneficial to the rising generation, and would, doubtless, mingle themselves with any future discussions or deliberations that might take place on this subject.

In the year 1820–21, Mr. Brougham (now Lord Brougham) introduced a Bill into the House of Commons, entitled, " A Bill for better providing the means of education for his Majesty's subjects," which was imbued with a spirit of illiberality and intolerance which would have disgraced the darkest ages of the Christian era. The following were some of its leading provisions. " 1st, No person is capable of being elected as *Schoolmaster* by the Parish, who does not produce a certificate *that he is a member of the Church of England, as by law established.*" In this sweeping regulation, it is roundly declared, that, among all the six or seven millions of respectable Dissenters; that, among all that class of men who have descended from the congregations formed by Baxter, Owen, Watts, Doddridge, and a host of other illustrious Divines, renowned for their sterling piety and learning; that, among the whole of that class of men who, for the last forty years, have shown more disinterested zeal and activity for the instruction of the poor than any other class in the British empire! there is not a single individual that deserves to be entrusted with the education of youth! and for no other reason than because they have dared to think for themselves, and refused to submit to ceremonies and ordinances which are not appointed in the word of God. In another regulation, power is given to the clergyman of the parish " to call before him the person chosen by the parish, and to examine him touching *his* fitness for the office, and if he shall *not approve of* the person chosen, he may reject his appointment" as often as he pleases, without assigning any reason, save his own will and pleasure, and *from this decision there was to be no appeal!* which rendered nugatory, and little short of a mere farce, the previous election made by the qualified householders of the parish. After the teacher was supposed to be approved of and fixed in his situation, a set of arbitrary regulations and restraints were imposed upon him by "the rector, curate, or other minister of the parish." "He may at all times enter the school, examine the scholars, question the master touching his government of the school: may direct, from time to time, *what portions of Scripture shall be read, either for lessons or for writing in the school,* which direction the master is hereby required to follow." The teacher was also enjoined "to use select passages [of the Bible] for lessons, whereby to teach reading and writing, and shall teach no other book of religion without consent of the resident minister of the parish where such school is held, *and shall use no form of prayer or worship in the said school except the Lord's Prayer, or other select passages of the Scriptures aforesaid.*" Such regulations and injunctions reduced the teacher to something very little superior to a mere machine, or to a slave in the hands of a clerical despot. He was every day liable to be degraded and insulted in the presence of his scholars, whenever a haughty clergyman took it into his head to enter the school, and to display his magisterial and consequential airs. By the regulations enacted in this Bill, the *children* of Dissenters were likewise degraded. For, although they were *to be permitted* to attend the schools to be established, yet they were to be *distinguished*, in many respects, as *speckled birds*, different from those of the immaculate churchman, and compelled "to learn the liturgy and catechism of the Church, and to attend the Divine service of the Church of England," unless their parents "*proved themselves to be Dissenters from the Established Church*, and notified the same to the master." Such is only a *specimen* of the spirit and enactments which pervaded "Brougham's Education Bill;" enactments repugnant to the views of every liberal mind, and pregnant with bigotry and intolerance. It was a fortunate circumstance that the bill never passed the House of Commons; otherwise, it might have prevented the establishment of a liberal and efficient system of education for a century to come.*

It is to be hoped, that, in any future deliberations on this subject, a more noble and liberal spirit will be displayed in the arrangements connected with education. Indeed, no efficient system of national instruction can be established on an exclusive or sectarian principle. Persons of all religious denominations ought to be eligible as teachers, visitors, superintendents, and members of school-committees, on the sole ground of their intelligence, piety, and moral conduct—and of the knowledge they have acquired of the true principles of education, and the mode in which they should be applied. As, in every country, numerous classes are to be found differing in sentiment respecting subordinate points in religion, it could not be expected that they would come forward either with voluntary subscriptions, or submit, without reluctance, to be taxed for such establishments, if any particular sectary were to be invested with the sole superintendence, and all others excluded from a share in the deliberations and arrangements connected with their operation. Such an arrangement would be an act of glaring injustice to the parties excluded, since they have an equal right of management on the ground of their subscriptions, or of the taxation to which they would be subjected; it would foster invidious distinctions between the different parts of the same community; it would tend to prevent independency of thinking on religious subjects, and to promote a spirit of hypocrisy and sycophancy in inducing persons to sacrifice the dictates of conscience to the emoluments of office; it would throw into a state of unmerited degradation a large portion of the most respectable characters in Christian society—for eminent piety, intelligence, and benevolence, are not confined to any section of the Christian church;—it would nourish a spirit of alienation among the different portions of religious society, which has too long rankled in the human breast; it would prevent some of the most worthy and enlightened characters from coming forward as candidates for the office of instructors; it would interpose a barrier to that harmony and affection which should subsist among all ranks and denominations of society; and would ultimately frustrate, to a very great extent, the grand objects which an enlightened education is intended to accomplish. Nothing but a spirit of selfishness and ambition, of bigotry and intolerance, inconsistent with the harmony of society and the principles of our holy religion, will again attempt to establish education on such illiberal and exclusive principles. In this point of view, we cannot avoid reprobating an attempt which is now making by certain individuals to extend the system of parochial schools, so that there shall be no occasion for teachers of any other description. We object to this object on the following grounds: 1. Because it is assumed that the education generally imparted in parochial schools, and the plan on which instruction has usually been communicated, are to be considered as patterns of excellence, and, consequently, require only to be more generally extended. In the preceding pages, we have endeavoured to show, that, in common with most other schools in this country, the parochial system is miserably defective and inefficient as to the great objects which an enlightened education ought to embrace; and, in proof of this, we need only appeal to the ignorance and vice which have hitherto prevailed, and still prevail, among the great mass of the population. That parochial schools have been, on the whole, of considerable advantage to Scotland, none will deny. But they have not produced the one-tenth part of the moral and intellectual effects they might have done, *had they been* established on a more liberal and en-that religion, which was intended to promote "peace on earth, and good-will among men," should so frequently have been used as a pretence for sowing dissensions in society, and violating the principles of natural justice. Whether "pure religion and undefiled" is promoted by attempting to raise one portion of the community and to crush another, and to throw a large body of respectable characters into a state of unmerited degradation, on account of their adherence to the dictates of conscience—is a question which may be safely left to every unbiassed inquirer to decide.—With regard to the *religious* instruction of the *young*, no difficulty could arise from the circumstance of persons belonging to different religious parties having the superintendence of it; since almost every denomination of Christians recognises the *essential* facts, doctrines, and duties of Christianity, which are the only religious topics which ought to be exhibited to the young either in public or in private. The man who, overlooking such subjects, would attempt to expatiate before the young on sectarian points of controversy, ought to be considered as destitute of that prudence and discretion which are requisite for a public instructor. If religion were taught, as it ought to be, directly from its Original Records, instead of being inculcated from human formularies, there would soon be little difference of opinion respecting its main and leading objects. The religion of Heaven has been communicated to us chiefly in the form of historical narrations, unfolding to us the Divine dispensations, in relation to the fall, the recovery, and the renovation of mankind, and embodying certain leading truths and moral precepts, to direct our affections and conduct—the great end of which is, not to engender strife and a spirit of metaphysical speculation, but to counteract moral evil, and to promote union, harmony, and love, among all who acknowledge its authority. There is no believer in revelation that calls in question the facts of Scripture, the perfections of the Deity it unfolds—the death, resurrection, and ascension of Christ—the immortality of the soul—a future state of punishments and rewards—or the propriety of the moral principles it inculcates. These are the leading topics of revelation; and to insinuate that such subjects cannot be taught directly from the Scriptures themselves, without the aid of human formularies, is nothing short of throwing a reflection on the wisdom of God, on account of the *manner* in which he has communicated his will, and of affixing a libel on the character of the inspired writers, as if their writings were not sufficiently plain and perspicuous.

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* Lord Brougham has displayed more enlightened views on the subject of education, in his speech delivered in the House of Lords, on the 21st May, 1835, and the resolutions founded upon it, than he did in his "Education Bill" of 1821, or even in 1833, when he declared, that there are sufficient means of education in England, and that "he had become a convert to the opinions of those who thought it would be unwise to disturb a state of things which produced such admirable results." It is to be hoped, for the good of the nation, that his lordship's suggestions will soon be carried into effect; and that the principles on which a national system *of education* is established will be such as to meet the *approbation of an enlightened and religious public*.

The efficiency of religious instruction deduced from the Scriptures alone, is clearly proved from the mode of tuition in infant schools. In these schools, religion is taught by familiar descriptions and details of scriptural facts—by illustrations, taken from Scripture and the scenes of nature, of the perfections of God—and by enforcing the moral precepts of the Bible on the young, and showing how they ought to be exemplified in all their intercourses with each other. Now, I appeal to every one who has witnessed the religious knowledge of the children in these schools, and its influence upon their conduct, if this mode of tuition is not infinitely preferable, as to its practical *effects, to the usual* method of instruction by catechisms, or any other formulary. Let us take a number of children at random from any common school, who have learned the "Shorter," or any other catechism, from beginning to end, and compare their knowledge and feelings in regard to religion with those of the children of a well-conducted infant school, and the superiority of the infant school children will be strikingly apparent, even although they are much younger than the former.—Should parents, however, wish to inculcate upon their children the *peculiar* tenets of the sect to which they belong, they have an opportunity of doing so at *home*, or by means of the pastors belonging to that denomination to which they are attached; but, in public schools, to attempt the inculcation of sectarian opinions, would be equally injurious to the interests of religion and the cause of universal education. This was attempted by the Church of England, in the enactments contained in Brougham's "Education Bill," and the same principle led the dignitaries of that church to oppose the Lancasterian system of education, and to patronise that of Dr. Bell, in which the peculiar tenets of the Episcopal church were to be exclusively inculcated.

That Christians of different denominations may cordially co-operate in the arrangements of education, appears from various existing facts. In the Northern States of America, as already noticed, education is far more general than in this country, and conducted on more rational and enlightened plans; and persons of all denominations in religion co-operate in its superintendence. In the 24th "Annual Report of the Trustees of the Public School Society of New York, for 1829," it is stated, among many other interesting facts, that "The Board of Education consists of members of eight or ten religious denominations, *all acting with entire harmony*"—that "they discharge the important duties of their trust, with a single eye to the public good"—and that they received the sanction of "an independent set of examiners, who have repeatedly inspected the schools, and are acquainted with the operations of the Board" —who express in their Report "their full confidence that the literary, moral, and religious instruction, calculated to fit the young for the duties of life, and to prepare them for the happiness of futurity, is properly attended to, and the school monies strictly and most beneficially applied to their legitimate purposes." This board had the superintendence of "21 schools, with 21 principal and 24 assistant teachers, and 6007 children," the expense of which amounted to 62,000 dollars; besides which there were above 450 private, charity, and other schools in the city of New York.—We know, too, that the "British and Foreign School Society" is conducted on similar principles—its Directors consisting of persons belonging to the established church and the various denominations of dissenters; and the same is the case with the institutions for infant education which have been lately established in many of our populous towns. The hand-bill, announcing the objects of the Model Infant School, Glasgow, which was framed by the Rev. Dr. Welsh, then of St. David's church, states, as one of the objects of this institution, that it is "for the reception of children from the age of two to that of six years, with the view of *imbuing their minds with* the knowledge of religious truths,"

—and that "the plan of communicating religious truths is by the narratives, the precepts, and the plainest announcements of Scripture." In short, the liberal plan now suggested has been adopted in all its extent in the kingdom of Prussia, where a national system of education has been established in which all classes of religionists, whether Protestants or Catholics, have an equal interest, and which, for more than half a century, has been conducted with the greatest regularity and harmony. So that there is no impossibility in persons belonging to different religious persuasions co-operating in the business of education, where there is a sincere desire to promote the improvement of the young, and the best interests of general society.

But should it be found impossible to induce the dominant sect in any country to co-operate with dissenters in the arrangements of education, perhaps the following might be the most eligible plan of procedure :—Let the government allot a sum adequate to the erection and endowment of all the schools requisite for an enlightened and efficient system of education—let this sum be divided between churchmen and dissenters, in a fair proportion, according to their respective numbers—and let the application of this sum, and the details respecting the patronage of the schools, the qualifications of teachers, and the mode of instruction, be left to the respective parties, to be arranged as their judgment and circumstances may direct—specifying, however, some of the grand and leading principles on which the schools must be established. A plan of this kind would, indeed, still preserve the invidious distinction between churchmen and dissenters; but it would be infinitely preferable to bestowing the whole patronage and superintendence of education on any one sectary or class of men whatever.—Should government refuse to grant any pecuniary assistance to such an object, dissenters and all others have it in their power, by coming forward, in one grand combination, with *voluntary* contributions, to accomplish this noble design, independently of aid from any power under heaven; provided they are *willing* to make some of those small sacrifices formerly suggested. (See page 552.) And if they *will not* stand forward as bold champions, with their purses in their hands, ready to be delivered up for the support of this good cause, they will declare themselves to be unworthy of the name of *Christians*, or of *lovers of their species*, and will deservedly be deprived of all the advantages, in time and eternity, which might result from the accomplishment of this object, to themselves and to their offspring, both in the present and in future generations.

CHAPTER XIV.

Maxims, or First Principles in Education.

I. THE *idea should go before the word which expresses it*—or, in other words, *A clear and distinct conception of an object should be impressed upon the mind, before the name or terms which express it be committed to memory.*

This may be considered as the first and fundamental principle of intellectual instruction; and, if admitted, the following rule should be strictly adhered to in the business of education:—*Let no passages of any book be committed to memory before the leading ideas they contain be clearly understood.* If this principle were universally introduced into education, it would overturn almost every system of instruction which has hitherto prevailed both in secular and religious tuition. An opposite principle has almost uniformly been acted upon; and hence, catechisms, psalms, hymns, grammar rules, chapters of the Bible, and speeches in the Roman senate, have been prescribed as memorial *tasks*, before any of the ideas contained in them could be appreciated. We may ask, in the name of all that is wise and rational, Of what use is it to stock and overburden the memories of children with a medley of words to which no correct ideas are attached? Although a child could commit twenty catechisms to memory, or could even repeat the whole of the Old and New Testaments, what purpose would it serve, if he did not enter into the spirit and meaning of the truths therein recorded? I have conversed with an individual who could repeat the whole Bible from beginning to end, and yet was entirely ignorant of the meaning of almost every proposition it contained, and its most interesting truths appeared to have made no impression upon his heart. As in the original formation of language, the objects of nature must *first* have been observed and known before words or signs were fixed upon to distinguish them; so, in communicating the elements of thought, the objects of thought must first be recognised and described before the terms and epithets which express their naures and qualities be committed to memory. Instead of obtruding a medley of words before they are understood, upon the memories of the young, they should be made to *feel a desire* for terms to express their ideas; and, in this case, the ideas and the words which express them will afterwards be inseparably connected.

II. In the process of instruction, *Nothing* (if possible) *should be assigned to the young merely as tasks.*

Every thing prescribed for the exercise of the faculties, should be represented both as a *duty* and as a *pleasure;* and if the young *understand* the nature and objects of their scholastic exercises, and the manner in which they should be prosecuted, they will find a pleasure in endeavouring to surmount every apparent difficulty. I once knew a gentleman, the Rector of a grammar school, who, on his admission to his office, boasted that he would conduct his school without inflicting any corporal punishment—instead of which, he prescribed from twenty to sixty or eighty lines of Virgil or Horace, as memorial *tasks*—and, when not accurately repeated, increased their number. But this practice had no other tendency than to excite revengeful feelings, and to produce disgust at the process of learning.

III. *Every thing that is cheerful and exhilarating to the young should be associated with the business of education.*

Hence, school-rooms should be spacious, light, and airy—comfortably heated during winter, and erected in delightful and commanding situations. The school-books should be neatly printed, and enlivened *with pictures* and engravings coloured from nature—

amusing and instructive experiments should frequently be exhibited—and the pupils should be occasionally gratified with excursions into interesting parts of the country, to view the beauties of nature and enjoy the bounties of Providence; so that all their scholastic exercises may be connected with delightful associations.

IV. In the practice of teaching, *the principle of Emulation should be discarded.*

By a principle of emulation I mean, the exciting of the young to exertion from the hope of reward when they excel their companions in intellectual excellence, or from the fear of punishment or degradation when they fall beneath them in industry and acquirements. Many teachers have asserted that they could not conduct education with any effect without the aid of this principle. But, whatever effect it may have in an *intellectual* point of view, it almost uniformly produces an injurious effect on the *moral* temperament of the young, on their companions whom they excel, and on their parents and guardians, who are led to form false estimates of their progress and acquirements by the prizes they receive and the places they occupy in their respective classes. One grand end of instruction, which has been too much overlooked, is to cultivate and regulate the moral powers—to produce love, affection, concord, humility, self-denial, and other Christian graces. But the principle of emulation has a tendency to produce jealousy, envy, ambition, hatred, and other malignant passions, and to exhibit intellectual acquisitions as of far greater importance than moral excellence. Besides, it is only a very few in every class that can be stimulated to exertion by this principle, and these few are generally of such a temperament as to require their ambitious dispositions to be restrained rather than excited. In the "American Annals of Education," for January, 1833, there is an excellent paper on this subject by Miss C. E. Beecher, of Newport, Rhode Island, a lady well known as an efficient teacher. After enumerating the evils which uniformly flow from the principle of emulation, she states the following motives, as those which she has found "not only *equal*, but *much more* efficient, in reference to all the objects to be gained n education:"—"1. *Personal influence*—endeavourng to gain the esteem, the affection, and the confidence of the pupils," &c. In this connection she ustly remarks, "that *commendation for improvement* needs to be practised much more frequently than reproof for deficiency. 2. By habitual appeals to the *Bible* as the rule of rectitude, and to *conscience* as the judge. 3. By cultivating a love of knowledge for its own sake, that is, for the pleasure it imparts; and also for the sake of the increased good it will enable us to do for our fellow-beings. 4. By efforts to form a correct public sentiment in school, so that it shall be unpopular to do wrong. 5. By appeals to parental influence, and that of other friends. This is accomplished by transmitting frequent accounts both of deficiency and improvement to the friends of the pupils. 6. By cultivating in the pupils a sense of obligation to God, of his constant inspection, and of his interest in all their concerns." These principles, (which are more particularly explained and amplified in the paper referred to,) she adds, "I have chiefly depended upon during the last three or four years of my experience as a teacher. Every year has added to my conviction of their efficacy, and every year has increased my satisfaction that the principle of emulation has been banished with no consequent evil, and much increase of good."

Mr. Morgan, in his late "Address to the Proprietors of the University of London," expresses sentiments in accordance with the above. Speaking on the subject of *prizes*, he says, "A prize is the least effectual mode of accomplishing the desired object; it is founded on injustice, inasmuch as it heaps honours and emoluments on those to whom nature has already been most bountiful, and whose enjoyments are multiplied and increasing in a greater ratio than others by the more easy acquisition of knowledge." "Praise, and invidious comparisons, are only other forms of the same principle, alike fruitful in envy, pride, scorn, and bitter neglect. In the curiosity of children, there is a sufficient and a natural stimulant of the appetite for knowledge, and we live in a world abounding in the means of useful and pleasurable gratifications. All that is required of preceptors is to aid the development of the faculties with affection and judgment." A *certificate* of diligence and good conduct seems to be all that is necessary to distinguish from the vicious, the idle, and slothful, those who have employed their time and talents in a proper manner.

V. *Corporal punishments should be seldom or never inflicted*—and, when they are determined upon as the last resort, they should be inflicted *with calmness and affection.*

There is something revolting and degrading in corporal punishments, and the necessity of resorting to them generally indicates, that there had been a want of proper training in the earlier stages of life. It is vain to imagine, that children can be *whipped* either into learning or religion; and, if an enlightened and judicious mode of tuition were universally adopted, there would seldom be any necessity for resorting to such a stimulus. But in the modes of teaching which have most generally prevailed, corporal punishments are almost indispensable. In the German "Pedagogic Magazine," for 1833, we are told that "there died lately in *Swabia*, a schoolmaster, who, for 51 years, had superintended an institution with old-fashioned severity. From an average inferred from recorded observations, one of the ushers calculated, that, in the course of his exertions, he had given 911,500 canings, 124,000 floggings, 209,000 custodes, 136,000 tips with the ruler, 10,200 boxes on the ear, and 22,700 tasks to get by heart. It was farther calculated, that he had made 700 boys stand on peas, 600 kneel on a sharp edge of wood, 5000 wear the fool's cap, and 1708 hold the rod,"—amounting in all to 1,421,208 punishments, which, allowing five days for every week, would average above a hundred punishments every day. There is something extremely revolting in the idea of such a series of punishments being connected with learning; and we may justly infer, that, however much classical learning may have been advanced, very little useful knowledge or moral principle was communicated in that seminary. For, a system of moral and intellectual instruction, calculated to *allure* the minds of the young, is altogether incompatible with such Gothic rudeness and severity.*

VI. *Children should not be long confined in school —and never longer than they are actively employed in it.*—A school ought never to serve the purpose of a prison. If the junior classes are incapable of preparing their lessons by themselves, they should either be provided with some amusing toys or picture books, or be turned out to romp about in the open air, or under a covered shed in rainy weather, and called in when their lessons are to be explained.

VII. *Young people should always be treated as rational creatures, and their opinions occasionally solicited as to certain points and scholastic arrangements.* The *reasons* of the treatment they receive, and of the exercises prescribed, in so far as they are able to appreciate them, should occasionally be stated, and explained and illustrated.

VIII. *Reproofs should always be tendered with the utmost calmness and mildness.*—When they are uttered in passion, and with looks of fury, they seldom produce any good effect, and not unfrequently excite a spirit of revenge against the reprover.

IX. *One great object of education should be to fix the attention on the subjects we wish to explain and elucidate.*—On the proper exercise of the faculty of attention depends almost all our improvement in knowledge and virtue. Even the *senses* are improved by the exercise of this faculty. Hence the peculiar delicacy of touch observable in the blind, and the quick-sightedness of the deaf; hence the distinct perception of distant objects acquired by sailors, and of delicate and minute objects by watchmakers and jewellers,—in all which cases the attention has been specially directed to particular objects. It was by fixing his attention on the subject, or "continually thinking about it," that Newton, as he himself declared, discovered the laws of the planetary motions, and was enabled to unfold the true system of the world. Hence the propriety of presenting sensible objects to the view of children—of exhibiting before them interesting experiments, and of having their books adorned with lively and accurate engravings. Hence, too, the propriety of teaching them to notice every object within the reach of their vision, and to mark every minute change that takes place in the form, colour, and situation, of the objects around them, and to give an account of what they may have seen or heard in any of their excursions; all which circumstances have a tendency to induce a habit of *attention*, without which there can be no solid improvement in any department of instruction.

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* Corporal punishments have generally a *hardening* effect on the minds both of young and old. A blacksmith brought up his son, to whom he was *very severe*, to his own trade. The urchin was, nevertheless, an audacious dog. One day the old vulcan was attempting to harden a cold chisel which he had made of foreign steel, but could not succeed. "Horsewhip it, father," exclaimed the youth, "if *that* will not harden it, nothing will."

CHAPTER XV.

Mechanics' Institutions.

On these institutions I intended to offer a few *particular* remarks, and to suggest some arrangements by which they might be rendered more extensively useful than they have hitherto been, both in a moral and intellectual point of view, but as this volume has already swelled to a considerable size, I shall confine myself to a very few general observations.

It is now more than twenty years since I had an opportunity of suggesting the establishment of such institutions, under the designation of "*Literary and Philosophical Societies, adapted to the middling and lower ranks of the community.*" The details in relation to this subject, consisting of a series of five successive papers, were published in the London "*Monthly Magazine*" for the year 1814—more than eight years before any mechanics' institutions were organized in this country.* Although these papers have seldom been referred to, in the history of mechanics' institutions, yet the author is aware that they were the means of suggesting, to certain individuals, the idea of establishing such societies; and, not above a year or two after their publication, a society was organized in the vicinity of London, on the plan and principles suggested in these papers, of which the author was elected an honorary member. Instead of inserting, in this place, the substance of these papers, as was originally intended, I shall merely give a short sketch of their contents.

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* See "Monthly Magazine," vol. xxxvii. for April and July, 1814, pp. 219, 507, and vol. xxxviii, for August and September, 1814, pp. 23, 121, and for January, 1815, p. 503. These communications occupy more than 22 closely printed columns, and contain several minute details in relation to what should be the *leading objects* of such institutions, and the means by which they might be established.

In the first communication, after a few introductory observations in reference to existing associations, and other particulars connected with the dissemination of knowledge, the following, among many other advantages, were pointed out as likely to flow from the extensive establishment of such institutions:—1. They would serve to unite and concentrate the scattered rays of genius, which might otherwise be dissipated, and enable them to act with combined vigour and energy in the discovery and the propagation of useful knowledge. 2. They would tend to promote the rapid advancement of general science; for if the labours of those societies which already exist have produced a powerful effect on the progress of science, much more might be expected were their number increased to eighty or a hundred fold. 3. They would have a tendency to produce an extensive diffusion of rational information among the general mass of society, particularly among those in the inferior walks of life, by which the narrow conceptions, superstitious notions, and vain fears, which so generally prevail, might be gradually removed, and a variety of useful hints and rational views suggested, which would tend to elevate and ennoble the mind, and promote domestic convenience and comfort. 4. They would induce a taste for intellectual pleasures and rational enjoyment, in which those hours generally spent in listlessness, foolish amusements, and the pursuits of dissipation, might be profitably employed, and, consequently, the sum of general happiness augmented. 5. If properly conducted, they could not fail of producing a benign influence on the *state of morals* and of general society. As vice is the natural offspring of ignorance, so true virtue can only flow from elevated and enlightened principles; and, where such principles exist, their operation, in a greater or less degree, will always appear. The habits of order, punctuality, and politeness, which would prevail in such associations, would naturally be carried into the other departments of life, and produce their corresponding effects. The frequent intercourse of men of different parties and professions, associated for the purpose of promoting one common object, would gradually vanquish those mutual prejudices and jealousies which too frequently exist even in cultivated minds, and a liberal, candid, and humane spirit, would be cherished and promoted. Society would thus acquire a new polish, and wear a different aspect from what it now exhibits in the inferior ranks of life; more especially, *if the means now suggested be combined with the operation of Christian principles.*

The other communications illustrated the arrangements and regulations requisite in the operation of such institutions, particularly in relation to the following circumstances.

I. *The Admission of Members.*—In regard to this circumstance, the two following extremes should be guarded against—the indiscriminate admission of all who may wish to become members, whatever may be their literary or moral characters—and the giving an undue preference to certain individuals, on account of their rank, who have not a corresponding share of common sense and literary acquirements. In a literary society, the distinctions of rank ought to be, in a great measure, if not altogether, overlooked; while, at the same time, the utmost decorum and politeness ought always to prevail. It is now high time that human characters were estimated according to their real and intrinsic worth, independent of those external and adventitious circumstances with which they may be accompanied; and it will be highly becoming in rational associations to set an example of estimating the characters of men on principles purely of a moral and intellectual nature. Although money is a useful article in all societies, yet it would be inexpedient to solicit any individuals, not otherwise qualified to become members, chiefly with a view of their contributing to the pecuniary interests of the association. Such persons would not only be a dead-weight upon the society, but, by the undue influence they would have, might tend to impede its progress, and prevent its chief design from being accomplished. Besides their literary acquirements, *the moral qualifications* of those who desire admission ought not to be altogether overlooked. Knowledge is chiefly desirable in proportion as it is useful. If it does not lead its possessor to propriety of moral conduct, its utility, at least to him, may be much questioned. In all rational institutions, the melioration of the moral characters and dispositions of mankind ought to form as prominent an object as the illumination of their understandings.

II. *The Subjects of Discussion, and the mode of conducting it.*—Every subject which has a tendency to induce a habit of rational thinking, to elevate and ennoble the mind, and to present sublime and interesting objects of contemplation—every subject which *tends to unfold the* wise arrangements of nature, and *the laws by which* the economy of the universe is regulated, which displays the attributes of the Divinity, and leads the mind upwards "from Nature to Nature's God;"—every subject which tends to promote the progress of science, the advancement of the liberal and mechanical arts, and the moral improvement of mankind, might occasionally become topics of discussion in a society constituted on the principles to which I have alluded. These subjects would embrace the prominent parts of natural history, geography, astronomy, experimental philosophy, chemistry, natural theology, ethics, education, arts and manufactures, physiology, domestic economy, and similar branches of knowledge. Although party-politics, and sectarian views of religion, should be excluded, yet there are certain general topics connected with these subjects which might form legitimate subjects of discussion; such as the general principles of legislation, the causes of the wealth of nations, the effects of different modes of taxation, and other branches of political economy—the character and attributes of the Deity, the principles of moral action, the immortality of the soul, the *facts* of sacred history, and the evidences by which they are supported—the harmony of nature and revelation, and the means by which the character of the human race may be elevated and improved, and the moral world regenerated.

In the discussion of such subjects, there are four different modes which might be occasionally adopted. —1. The first mode is that of *public lectures*. A lecture might be delivered once a week, or fortnight, or oftener, according to circumstances, on some interesting subject of natural history, chemistry, or experimental philosophy, accompanied with experiments. In order to raise a sum for remunerating an intelligent lecturer, persons not members of the society might be invited to attend, on the condition of paying a small contribution, the members, at the same time, contributing a little, though in a smaller proportion. In order to excite attention, and to stimulate the exercise of the rational faculty, an *examination* of such of the auditors as chose to submit to it, on the different particulars detailed in the lecture, might take place either at the conclusion of the lecture, or at some future hour; and, at the same time, an opportunity offered of putting questions to the lecturer, and stating any difficulties or objections which may have occurred to them, in order to their solution.—2. By the more intelligent members *composing essays on particular subjects, and reading them to the society.* For the benefit of young writers, it might be proper, *in a candid and friendly manner*, to point out the grammatical blunders, improper phrases, erroneous statements, or other improprieties which may be found in the essay; and the writer ought to consider such hints as so much new and useful information, by the help of which he may be enabled to render his future compositions more correct. In order to make a respectable figure as writers of essays, particular attention should be given to the arts of grammar and composition; and exercises and instructions on these subjects might occasionally form a part of the business of the society. As some essays may occasionally be read of which the society may wish to have copies *for future* inspection, in order to save the *trouble of the* secretary transcribing them, it might be proper to recommend that every essay be written on paper of the same size, so that they might afterwards be bound in regular volumes, to be preserved as part of the records of the society. In this way, the literary communications made to the society would be recorded in the hand-writings of their respective authors, free of those errors which might be occasioned in their transcription by another hand.—3. Another method of discussion might be by *Forensic disputations.* In this case, a question is proposed and stated, and opposite sides of the question are supported by different speakers. This method has its advantages and its disadvantages. Its *disadvantages* are, that persons, in their eagerness to support the side they have taken, are sometimes apt to contend more for victory than for truth; and, unless they watch over their tempers, are ready to fall into a spirit of altercation and ill-humour, and to throw out unhandsome epithets against their opponents. Many persons, too, from their having ably supported the erroneous side of a question, have been insensibly led to adopt that opinion, though, in the first instance, they defended it merely for the sake of argument. Its *advantages* are, that it excites interest and attention, exercises the reasoning faculty, and affords an opportunity to every member of taking a part in the discussion. It may, when properly and calmly conducted, suggest useful information, and throw light on many obscure and interesting subjects. It has a tendency to teach persons not to be too rash in adopting opinions till they have weighed the objections that may be brought against them. As the discovery of truth ought to be the chief object in all literary debates—in order to insure this object, an intelligent person, who has taken no direct share in the debate, might be appointed to sum up the arguments on both sides, and endeavour to balance them, in order to ascertain on which side the truth seems to lie. In certain cases, it will be found, that the truth does not lie directly on either side, but in a middle position between the two extremes. This mode of discussion, when adopted, should be used with extreme caution, with an equable temper, and with a sincere desire to discover truth, wherever it may be found; otherwise, it may be attended with hurtful consequences.—4. Another mode of discussion is, *the determining of a question by an induction of facts or reasons*, in order to illustrate a particular subject; or, in other words, by an inquiry into causes and effects. For example, suppose such questions proposed as the following:—What are the different causes which operate in the production of rain? On what principles are we to account for the various phenomena attendant on thunder-storms? By what means may the stroke of lightning be averted? What are the various useful purposes to which the late discoveries respecting the *gases* may be applied? By what means, and on what principles, may human beings be transported from one place to another with a more rapid motion than has hitherto been effected? What are the best means for undermining the principle of avarice, and counteracting its effects? What are the most efficient methods for diffusing knowledge, and improving the moral and intellectual powers of man? On such questions, every member might be *called upon* to suggest whatever occurs to him that has a tendency to elucidate the subject, and to determine the inquiry; and the remarks of all the members who deliver their sentiments, when combined, could not fail to throw some light on an interesting question, or, at least, they would tend to excite to further inquiry at a future period.

III. *The Funds of the Society, and the purposes to which they might be applied.*—Money is a necessary article in every association, and is indispensable in the vigorous prosecution of scientific objects. Little of it, however, is required for rational and literary purposes, compared with what is spent in the pursuits of folly and dissipation. Although it is not usual in most societies to make any difference in the sums to be paid by every member, yet it appears somewhat unreasonable, that a person whose income is known to be very limited should contribute as much as one whose income is five or six times greater. A minimum, however, ought to be fixed, below which the poorest member should not be permitted to go, except in very singular cases. Those whose incomes are known to be considerable should be requested to give separate subscriptions, besides the regular quarterly or annual fees, for the purpose of more speedily accomplishing the objects of the institution. Two or three different rates of annual fees or subscriptions might be fixed upon, a maximum, a middle, and a minimum, and every member left at liberty to choose that rate which suits his circumstances. Nor ought those who are unable to pay the maximum rate, or to give separate subscriptions, to be, on this account, considered as inferior to their fellows; for it is no disgrace for a man to be poor, if he is honest, prodent, and industrious, and has not wasted his substance in folly or dissipation; as it is no honour to a fool to possess wealth which he was not instrumental in acquiring.—The purposes to which the funds of a literary institution may be applied are such as the following:—

1. *The purchase of books.*—These are the grand depositories of human knowledge, and, therefore, it should be the first object of every literary establishment to procure a judicious selection of the best books, in every department of science. In regard to the *general subjects* of the books to be purchased, it may be proper that every member have it in his power to give his vote and opinion; but the selection of the individual books on any particular science, should perhaps be intrusted to a committee composed of such members as are best acquainted with the present state of literature.—2. *The purchase of philosophical instruments.* It may perhaps be a considerable time before the funds shall permit the purchase of an extensive apparatus of this kind, yet if a certain portion of the funds be appropriated to this object, in the course of 20 years 500 guineas might be devoted to it, supposing the society to consist of 100 members, every one contributing annually half a guinea, and that only one half of the funds are appropriated to this purpose. Nor should it be considered as an object too grand and extensive, to have ultimately in view the erection of an observatory for astronomical observations, and a complete apparatus for illustrating the doctrines of chemistry, natural philosophy, and all the other departments of *natural science.* Specimens of interesting objects in

botany, zoology, mineralogy, and geology, might also be procured, along with models of useful machines for illustrating mechanical powers and operations. Where there is an ardent love of science, and an animated perseverance in prosecuting its objects, all the ends now stated might, from small beginnings, be in due time accomplished.—3. Another purpose to which the funds may be applied might be, *the distribution of premiums* to those who solve any difficult and useful problem, or who produce the best essay on a given subject. If the propriety of bestowing premiums in such cases be admitted, the following principle might be adopted as to the nature of the premium; namely, that it be such as can be procured at a moderate expense, and, at the same time, be of some *utility* to the person to whom it is adjudged. Instead of a gold or silver medal,—a pocket compass, a sun-dial, a pocket telescope, a small microscope, a quadrant, a case of mathematical instruments, a terrestrial or celestial globe, a tellurian, or any useful article which may best suit the taste of the successful candidate, might be given as a premium; and along with it a medal of copper, pewter, or brass, or an engraved card, with an appropriate inscription.

IV. *The Publications of the Society.*—A considerable time would probably elapse before such a society would have it in its power to communicate any new discoveries worthy of the attention of the scientific world. Yet this consideration ought not, perhaps, to deter the society from exhibiting some of its transactions to public view. In the progress of the institution, after the lapse of a few years, a selection might be made of the best essays that had previously been communicated, and published in a neat duodecimo volume, with an historical account of the progress of the institution since its commencement, and the manner in which its operations are conducted, together with an abstract of the general progress of science during the same period, which might be collected from certain scientific journals. It would also be useful to give a brief statement of what had hitherto been discovered in relation to the different sciences, with hints respecting the *desiderata*, or things which still remain to be discovered—which would tend to direct the attention of the rational inquirer to those particular investigations by which science might be advanced, and carried forward to perfection. Such a volume, though it might not embody any new deductions or discoveries, might, notwithstanding, be of considerable utility in different respects. It might convey new and useful information to those who are just commencing the study of science, and who have no access to the more learned transactions of other societies; it might become a depository for inserting accounts of interesting facts, and of researches that may be made in that part of the country where the society is situated; it might tend to excite the rational part of mankind in other cities and towns to form similar establishments, and to cultivate a mutual correspondence; and, as it would probably obtain a considerable circulation in the surrounding districts, (being printed in a cheap and economical form,) it might diffuse new information in different quarters where more expensive volumes would never have found admittance.

V. *Correspondence and intercourse of the members of the different societies.*—It might be of considerable use for promoting the object of these institutions, that the societies, in their corporate capacity, and individual members, should correspond with each other, both personally and by literary communications —and that the members of one society, when occasionally residing in the locality of another, should be admitted gratis to all the privileges of that other society; such as, the use of the library, the inspection of the museum, and attendance on lectures. In order to designate the members of all such societies, and to prevent the necessity of a circumstantial proof of their belonging to similar institutions, every member might be furnished by his own society with an engraved card or ticket, or rather with a medal of brass or pewter, having the society's name and motto engraved on it, and to which the name of the person, at his admission, might also be appended. The advantages which would result from the possession of such a document are sufficiently obvious. It would form, as it were, a bond of union among all the lovers of science in different parts of the empire, and enable them with facility to recognise each other. Travellers, whether on business or for pleasure, when visiting the different towns in the line of their route, would thus obtain an easy access to the society of persons of congenial minds; useful hints would be reciprocally communicated, and an interesting correspondence occasionally formed, which might be productive of many pleasing and important consequences, both to the individuals and to the respective societies. They would thus feel themselves more at home, devoid of that *ennui* which one so frequently feels in strange places, and have an opportunity of improving those hours which might otherwise be dissipated in listlessness, to rational and scientific purposes. In short, by this means, the idea suggested by the celebrated Lord Verulam, of uniting the learned world into one great republic, might be in some measure realised; every person of intelligence carrying along with him his badge of distinction, and thus indicating to all congenial minds, the grand association to which he belongs.

The present is an age in which scientific associations have rapidly increased. The principle of the division of labour seems now to be judiciously acted upon in scientific investigations, by the formation of societies which have chiefly one great object to promote, or one particular science which they propose to cultivate; and therefore we have reason to indulge the hope, that the different sciences will now make more rapid advances to perfection than in former times. Still, however, much remains to be accomplished in regard to the establishment of literary and rational associations. The discoveries hitherto made in the various departments of human knowledge are entirely unknown to by far the greatest proportion even of the civilized part of mankind. Institutions, therefore, still require to be formed, on an *extensive scale*, for communicating to the great mass of society at least the results of those researches which have hitherto been made, for eradicating those erroneous notions which so generally prevail, and for directing *their attention* to moral and intellectual pursuits. *And should* such societies be formed, we might indulge the hope that, ere long, they would be enabled to co-operate with those respectable societies which now exist, in making researches into those regions of science which are yet unexplored, and of promoting the *moral* improvement of all classes of the community. They would likewise have a tendency to advance the interests of genuine religion. For, true science and the doctrines of revelation, so far from being at variance, perfectly harmonize, and reflect a mutual lustre upon each other. Of course, the more general information persons require in relation to the system of nature and the economy of the material world, the more will they be qualified for studying the Scriptures in a rational manner; the light of sound philosophy will have a tendency to guard them from scepticism on the one hand, and from superstition and enthusiasm on the other, and to prevent them from imbibing those foolish and erroneous interpretations of Scripture, which have tended to bring discredit on the oracles of Heaven. If, therefore, the moral improvement and the intellectual illumination of mankind be an object at all desirable, it is to be hoped the intelligent public will duly appreciate its importance, and encourage every scheme which has a tendency to raise our species to that dignity which they ought to hold in the scale of existence, as rational and immortal beings.

Such is an abridged view of the communications on this subject, which were offered to the public above twenty years ago, long before any such societies actually existed. Such institutions have now been established in most of the large towns of the British Empire, and in various parts of the United

States of America; but none of them with which I am acquainted comprehend in their plan all the objects above stated. In their present state they appear defective in the following respects:—1. In these institutions being regarded as chiefly adapted to the instruction of artists and mechanics, for rendering them more intelligent and expert in their respective trades and professions; and hence the instructions communicated have been almost exclusively confined to mathematics and mechanical philosophy. It is highly requisite that mechanics should be instructed in the physical and mathematical sciences connected with their professions; but this, instead of being considered as an ultimate object, should be viewed as only one of the *subordinate* objects of such institutions. Their grand and ultimate objects ought to be, to induce a taste, among the great mass of society, for moral and intellectual improvement—and to diffuse, throughout all ranks, useful knowledge of every description, in order to raise the human mind from that state of degradation in which it has been so long immersed, and to direct its contemplations to objects worthy of the dignity of rational and immortal natures.

In order to accomplish such objects, it is essentially requisite that knowledge be presented to the understanding *in its most interesting and alluring forms.* In the first instance, all abstract disquisitions, and abtruse mathematical investigations, should be studiously avoided, or postponed to a future period; and those scenes and objects presented to view, which have a tendency to allure the imagination, to excite inquiry, and to produce rational delight.

Such are the subjects of Natural History, which, considered in its most comprehensive sense, has for its object, to arrange and describe all the known facts in the material universe. *Facts* constitute the foundation of all the sciences—they are most easily acquired when properly described—their acquisition requires the least exertion of intellect—and, when presented to the view in sufficient number and variety, they will always produce pleasurable emotions, and a thirst for intellectual enjoyment. And, therefore, in the natural order of instruction, they ought to constitute the first portions of knowledge to be presented to the untutored mind in all colleges, academies, and mechanics' institutions. After the student has acquired a knowledge of such facts, the elements of the mathematical sciences might next occupy his attention, for enabling him to enter on the discussions of natural philosophy, astronomy, and the investigation of the causes of the phenomena of nature. A profound knowledge of the abstruse parts of mathematics, however, is not absolutely necessary for the acquisition of the more useful branches of general knowledge. An acquaintance with the demonstrations of the first book of Euclid, and of a few propositions in some of the other books—the elements of plane trigonometry and conic sections, along with practical geometry—is almost all that is requisite for understanding the more interesting departments of science, and may be acquired in a very short time, by a moderate application of the mental powers. The order I have now stated has, however, in most instances, been inverted. The abstractions of mathematical science have been presented to young and untutored minds before they had any conceptions of their utility, or the investigations to which they are applied, and before they had acquired a *relish* for substantial knowledge; and the consequence has been, that many have abandoned the pursuit of knowledge, on account of the dry and uninteresting form in which it was presented to the mind. In conformity with this practice, the directors of some mechanics' institutions have selected lecturers chiefly on the ground of their being *expert mathematicians*, without any knowledge of their accomplishments as *popular* teachers of natural science; and the consequence has been, that both the superintendents and the members of the institution have been disappointed, and the society has fallen into disrepute. For, a profound mathematician is not *generally* the person best calculated to convey a knowledge of the facts of natural history and philosophy, *in the most simple and alluring manner*, to the untutored mind.

2. Another defect in these institutions, as presently conducted, is, that they are not rendered so subservient as they might be to the *moral improvement* of society. Knowledge of every description ought to be rendered subservient to the illustration of Divine truth—of the attributes and moral government of the Almighty—of the facts and evidences of revelation—and for counteracting evil passions, and promoting the advancement of the human race in true morality—and thus preparing them for the employments of that future and eternal world to which they are destined. Unless this object be kept in view, the advantages which society will derive from such institutions will be comparatively few and unim-

portant. For the mere acquisition of scientific knowledge will not of itself counteract the depravity and moral evils which exist in the world, nor raise mankind in the scale of moral excellence, unless it be blended with that celestial light which proceeds directly from the great Source of intelligence. Discussions on some of the leading subjects to which I allude can easily be conducted, without in the least interfering with sectarian views of religion; and I cannot account for the almost universal practice of setting aside such topics in philosophical discussions, without being inclined to suppose that there is a certain degree of antipathy entertained towards such subjects, notwithstanding their important bearings on the present comfort and the future happiness of mankind.

I shall only add farther, that, besides the communication of knowledge by public lectures in mechanics' institutions, the members of such societies might have occasional meetings for mutual instruction. At such meetings, a portion of some standard, scientific, or other work, might be read, and a conversation entered into respecting the subject it discusses. Every member should have an opportunity of proposing questions in reference to that subject, and of stating any objections or difficulties that may occur to his mind—not for the purpose of cavilling or of formal disputation, but to increase his information, and to draw forth the remarks of his associates. In this way the leading branches of any particular system of science might be explained and elucidated in the course of a session.

PART II.

MISCELLANEOUS HINTS IN REFERENCE TO THE DIFFUSION OF KNOWLEDGE AND THE IMPROVEMENT OF SOCIETY.

On the following subjects I originally intended to enter into some specific details and particular illustrations. But as this volume has already swelled to a considerable size, I can offer, in the meantime, only a few general hints.—If we would carry forward the social state of man to that "consummation" which is so "devoutly to be wished," we would require, in the first place, to enter into *every department* of society, and detect the absurdities, abuses, and immoral principles connected with it, and expose them to view in all their naked deformities and unchristian tendencies. For there is scarcely a department of the social state, in Europe or Asia, whether civil, political, or ecclesiastical, but is based on selfishness, ambition, avarice, tyranny, or other anti-social and malignant principles. In the next place, it would be necessary, not only to investigate the remedies to be applied to such evils, but to introduce practices which have never yet prevailed, and to lay the foundation of institutions which have never yet been established. For, if ever we expect to behold a period when *knowledge shall be* universal, when "Righteousness shall run down our streets as a river," and when "Holiness to the Lord" shall be inscribed on all the employments of human life—our existing institutions require to be new modelled, and many of them altogether overturned, and a new foundation laid for the advancement of society, and the future progress of the human mind. Notwithstanding the vague and violent declamations of certain politicians and divines about the necessity of "preserving unimpaired our national institutions," it is evident that some of them are rotten to the very core, and stand as obstructions to the rights of mankind—to the progress of knowledge, and to moral improvement. There is a continual outcry among certain classes against every thing which has the appearance of "*innovation*," and which implies a want of confidence in "the wisdom of our ancestors;" as if laws and institutions, framed in an age comparatively barbarous and unenlightened, were so absolutely perfect that they required no farther correction or improvement. Without *innovation* there can be no thorough *reformation*. Many existing institutions, laws, and usages, have been tried for centuries, and have been found of little avail to the renovation of the world; and he who insists that they shall be still supported in every *iota*, as they have hitherto been, virtually declares, that *the moral world ought to stand still*, and that no such period as the Scripture-Millennium will ever arrive to bless mankind. There is an utter inconsistency in maintaining that every practice and institution should continue in its present state, and at the same time admitting that the world is to be regenerated, and that "the knowledge of Jehovah shall cover the earth." The one position appears incompatible with the other, and he who tenaciously adheres to the former must give up the latter; and hence we have sometimes found, that those who are strenuous supporters of "things as they are," do not hesitate to affirm, that "the world will never be much better than it has hitherto been, and that wars, and ignorance, and misery, will continue to the end of time." But such a sentiment, as we have already shown, is inconsistent with the plainest declarations of the oracles of Heaven, and tends to throw a dismal gloom over all the future prospects of society; and I trust there is scarcely one enlightened Christian that would dare to vindicate an opinion so inconsistent with the future improvement of our species, and with the benevolent purposes and arrangements of the Governor of the world.—But to enter particularly into the subjects to which I allude would require a separate volume of no inconsiderable size. I shall therefore, in the meantime, offer only a few very general hints, leaving every one to prosecute the subject more particularly by his own reflections.

I. *On Improvements in regard to Preaching.*

In the few remarks which I intend to make on this topic, it is taken for granted that the fundamental facts and doctrines of Christianity are to be frequently illustrated, and always *recognised* in every discussion that has a reference to religion. But it is preposterous to dwell almost perpetually, as some preachers do, on what may be termed the alphabet, the rudiments, or first principles of Christianity, as *if Christians* were always to remain "babes in

Christ." "Leaving the first principles of the doctrine of Christ," but neither forgetting them, nor dwelling exclusively upon them, they ought "to go on to perfection," carrying forward and tracing these principles through all their important bearings and consequences in the Christian life, and expanding their minds with all the views of the Divine operations which the aids of Revelation, art and science, can furnish. This progress towards perfection, however, can never be attained, if Christians are always employed in "laying again the foundation," and never attempting to rear the superstructure; and if Christian instructors are always exercised in attempting to prove and explain a few of the fundamental articles of the Christian system, and neglect to carry forward their readers and hearers through all the different departments of Christian action and contemplation. What should we think of the teacher of geometry who, after explaining the terms, axioms, and first principles of the science, stopped short, and left the student either to prosecute his path through the leading propositions and higher branches, or not, as he deemed proper? What should we think of the philosopher who spent his time merely in explaining the rules of philosophizing, and the general laws of motion, without ever applying them to the investigation and explanation of the phenomena of the visible world; and who is always defining first principles, without tracing them to their consequences, or pointing out the manner of their application? We could expect but poor geometers and philosophers from such meagre instructions. And can we expect that the *Christian* instructor who seldom goes beyond the *axioms* of Christianity shall render his hearers *enlightened* and *practical* Christians, and bold heroes in promoting the cause of reformation and religion? If such a plan of instruction be wise, then the apostles and prophets were fools in directing us so particularly in all the practical bearings of religion, and taking such expansive views of the works and the moral government of God. But, waiving such general observations, I proceed to offer two or three particular remarks.

1. The preacher should take in *a more comprehensive range of subjects*, in his instructions, than that to which he is usually confined. The Scriptures contain references to a greater variety of objects than any other book—all of which must be considered as legitimate subjects for discussion in the pulpit. The works of creation, as displaying the Power, Wisdom, Benevolence, Grandeur, and superintending care of the Creator—the events recorded in sacred and civil history, as manifestations of the character and principles of his moral government—the history of nations and the revolutions to which they have been subjected, as illustrative of his faithfulness and retributive justice, and of the fulfilment of ancient predictions—the harmony which subsists between the system of nature and the system of Revelation, and the mutual light they reflect upon each other—the depravity of man, and the proofs and illustrations of it which are to be found in the constitution and operations of nature, and in the wars, and devastations, and malignant principles which have prevailed in the world—the truth of Revelation, as displayed in its powerful and beneficent effects in the case of nations, families,

and individuals, and in its transforming influence on the state of society and on the physical aspect of the world—the various active means by which society may be improved and regenerated, and the blessings of the gospel diffused among all nations—the multifarious ways in which benevolence and general philanthropy may be made to operate in diffusing knowledge, counteracting misery, alleviating distress, and promoting happiness among all ranks—the rational grounds of those moral laws which God has promulgated in his word, which form the basis of the order and happiness of the moral universe,—these, and other topics connected with them, in conjunction with the leading doctrines of Christianity, and the views which the Scriptures unfold of the glories of the Millennial era, the resurrection of the dead, the new heavens and earth, and the employments and felicities of the future world—should be exhibited in a ruminous and energetic manner, and illustrated with all the facts and scenes which the physical and moral world can supply. In particular, the duties of *practical Christianity*, the government of the temper, the dispositions and principles which should be displayed amidst the scenes and departments of human life, the duties incumbent on masters, servants, parents, children, teachers, scholars, merchants, judges, authors, publishers, neighbours, and other relations in society, should be specifically explained and illustrated. Graphical descriptions might be given of the scenes of human life and the practices which abound in society, delineating the selfish and malignant principles which pervade them, drawing them forth from their hiding places, and portraying them before every eye, in all their contrariety to the principles of the gospel, and in all their repulsive features and abominations—at the same time showing *how* the spirit of Christianity ought to operate in every scene and department in the commercial, political, and religious world, and what delightful and harmonious effects would be produced, were the principles of our holy religion to be universally recognised in all the transactions of mankind.

Had we a preacher endowed with the graphical powers of a Sir Walter Scott, with a mind imbued with Christian principles, and ardently desirous to consecrate his faculties to the advancement of practical Christianity—he might, by his lively and picturesque descriptions of the scenes of sin and holiness, and their respective effects on the moral world, excite attention to such subjects almost to as high a pitch as that celebrated novelist did to his tales of warlike encounters, and of knights and ferocious chieftains whose names ought now to descend into oblivion. Such were some of the inspired preachers, whose orations are recorded in the book of God. Such was the prophet Isaiah when he proclaimed to the tribes of Israel the counsels of the Most High. Let us conceive him standing in an elevated position in the court of the temple, at one of the solemn feasts, surrounded with thousands of worshippers,—describing the majesty of Him "who measureth the waters in the hollow of his hand, meteth out heaven with the span, and weigheth the mountains in scales and the hills in a balance"—contrasting the grandeur of Jehovah with the vanities of the heathen and the pitiful *images of the* idolator—portraying the destruction of Babylon, and its hideous and perpetual desolations—depicting the riches and splendour of Tyre, and the doom which awaited her proud inhabitants—foretelling the downfall of Egypt and the utter confusion and despair which would seize upon all ranks—denouncing the wickedness and abominations of the people of Judah—displaying the Messiah, in his character, humiliation, sufferings, and triumphs, and unfolding the future glories of his triumphant reign, when "the Gentiles shall come to his light, and kings to the brightness of his rising," and "all the ends of the earth shall see the salvation of God,"—and we have a representation of a sacred orator, animated with the most sublime conceptions, and delivering his message in language calculated to arrest the attention of every hearer.*—The apostle Paul at Athens is another example.† Standing on the summit of Mars hill, under the open canopy of heaven, with the lofty Acropolis towering behind him, with islands, seas, mountains, and the peerless city of Athens, with the Porch, the Lyceum, and the Grove, stretched out before him, and pointing to the splendid temples of idolatry, and to the altar erected "TO THE UNKNOWN GOD"—he describes that incomprehensible Being "who dwelleth not in temples made with hands," who is the Source of life to all beings, and who has "appointed the *times* of their existence and the boundaries of their habitations"—demonstrates the absurdity of idol-worship—proclaims the commencement of a new era, and the command of the Most High to "all men every where to repent"—

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* See Isaiah, chapters xl. xliv. xiii. xxiii. xix. liii. lx. lxv. &c.

† Acts, xvii.

and declares the certainty of a future state, a resurrection from the dead, and a day when "God will judge the world in righteousness" by the man Christ Jesus. There is no doubt that in this discourse, of which we have only a brief summary, the apostle would select all the surrounding objects, the facts of history, and the scenes of nature, which could be made to bear on the point of discussion, in order to illustrate the sublime topics of his address, and to produce an indelible impression on the minds of his audience.

We have another representation of what a Christian preacher ought to be, in the example of Messiah, the great "Teacher sent from God." Seated on a mountain, with the vault of heaven above him for his sounding board, he expatiates on the happiness of the humble, the meek, the merciful, the pure in heart, the peace-makers, and they who are persecuted for the sake of righteousness, in opposition to all the false maxims which had prevailed in the world; and, in a long discourse, exposes the hypocritical and corrupt principles of the age, and enforces the true laws of moral action on every class of his hearers—a discourse which, if it were not recorded in the Bible as having been delivered by the highest Authority, would be considered by some as a specimen of *legal preaching*. On other occasions he collected multitudes on the sea shore, and addressed them from a ship, illustrating his heavenly doctrines from the sowing of seed, the tares among the wheat, the gradual progress of vegetation, the mustard tree, the pearl of great price, and the net which gathered fishes of every kind. The objects both of the *living* and inanimate creation were presented to his hearers as conveying sentiments of instruction and piety. He inculcated upon them confidence in the care of Providence, from the birds of the air and the flowers of the field. "Behold the fowls of the air," which are now flying around you, "they sow not, neither do they reap nor gather into barns, yet your heavenly father feedeth them;" "Consider the lilies of the field" growing on yonder meadow, "they toil not, neither do they spin, yet Solomon, in all his glory, was not arrayed like one of these." Such were the subjects illustrated, and the mode of instruction adopted by those who were commissioned from heaven to make known the will of God to man. How very different, both in matter and manner, were those simple and sublime instructions, from some of the meagre metaphysical discourses which are frequently read in our churches, in a dull monotonous tone, and which present scarcely one well-defined or animating idea to the majority of the hearers! And let the reason of every man, who acknowledges the Scriptures as a Divine Revelation, determine which of these modes of preaching is to be preferred—whether we ought to imitate the example of inspired teachers, or that of fallible and erring men!

Again, the subject of *the education of children*, and the proper means to be employed for training them in knowledge and christian morality, should occasionally form the subject of preaching. Lectures might be delivered on this subject on Sabbath evenings, or on week days, and the general principles and rules laid down, *particularly illustrated by examples taken from the existing scenes and practices of* *society*. With regard to *private* or *family* education, I know no book that would serve for a better model, as to the manner in which such instructions should be conveyed, than Mr. Abbot's "Mother at home," with all its appropriate facts and examples. Even the mere *reading* of such a book to a public audience, with occasional pauses, remarks, and familiar illustrations, might produce a more powerful practical effect than many elaborate sermons, whose object is merely to *prove* a doctrine which a single text of Scripture is sufficient to establish. This is a subject of paramount importance, and which has been too much overlooked in the business of christian instruction. Most of the evils which abound in society may be traced to the want of proper tuition in early life, under the domestic roof, and to the *ignorance* of parents and servants, as to the rational and moral principles on which instruction and family government ought to proceed. Discourses should likewise be occasionally preached *on the duty of Christians devoting a considerable portion of their wealth for the promotion of education and universal improvement in society*. This is a duty which, in the present age, is scarcely understood or appreciated; and yet, upon the universal attention that is paid to it will depend the future progress of knowledge and religion, and all the bright scenes to which we look forward in the days of the Millennium. But it is needless to enlarge on this topic after what has been stated in the preceding pages. (See p. 550, &c.)

2. The effect of preaching might be increased, *by illustrating the facts and reasonings connected with religion*—in so far as they are susceptible of it—with

sensible representations. In describing, for example, the Jewish tabernacle and its utensils, models or pictorial representations of such objects, on a large scale, might be exhibited. I have known persons who were considered as intelligent Christians and mighty in the Scriptures, who appeared to have no accurate conceptions of such objects, and who, when the relative positions of the altar of burnt offering, the sanctuary, and the Holy of Holies, were represented on paper, along with the furniture and vessels in the respective apartments, acquired ideas on the subject which they never before entertained. When we consider the frequent allusions made to such objects in the writings of the prophets, in the Evangelical history, and particularly in the Epistle to the Hebrews, it cannot be a matter of mere indifference, that Christians should be altogether destitute of clear conceptions of the scenes and objects connected with the tabernacle in the wilderness, or the temple at Jerusalem; and there are comparatively few individuals who are able to form a distinct picture in their minds of such objects merely from reading the descriptions in the books of Moses. I have heard a preacher attempt to convey an idea to his hearers of the *Ark of the Covenant*, by telling them it was about the size of a *tent-bed*, and somewhat similar to it in form. But it would certainly have conveyed a more precise and accurate idea, had a large drawing or engraving of it been exhibited to their view, and the different parts of it pointed out and explained. Maps, on a large scale, of Palestine, Asia Minor, and the countries around Judea, where the Apostles travelled to propagate the gospel, might likewise be exhibited, when the preacher is lecturing on the journeyings of Israel from Egypt, on the Evangelists, or the Acts of the Apostles, for the purpose of elucidating the narrations of the sacred historians, and showing the relations of the several towns and countries to which a reference or allusion is made; for the interest excited by these narratives, and some of the instructions to be derived from them, partly depend on our knowledge of the geographical positions and relations of the persons and places to which the history refers. Similar exhibitions might likewise occasionally be made of various objects alluded to in Scripture, connected with the agriculture, antiquities, arts and sciences of the Eastern nations,—on a knowledge of which a clear perception of the meaning and references of many passages in the prophetical and historical writings in a great measure depends. The only point to be settled is, whether it be proper, in any case, to introduce such subjects into the pulpit. If this point be admitted, then the question is, whether we ought to convey a clear and distinct idea of the object, or an obscure and distorted conception, or no idea at all. For mere verbal descriptions can convey no distinct conceptions of the objects to which I allude.

Some worthy Christians, I am aware, would be apt to imagine, that such illustrations are altogether foreign to the business of religion, and that they would draw aside the mind from God and spiritual objects. But, I would ask, what do we know of religion except the notions we have acquired through the medium of the senses? What ideas have we *of God but what* we have derived from the history of *his dispensations* recorded in his word, and the contemplation of his visible works? Every fact contained in the Bible embodies in it a description and exhibition of *sensible* objects, without the intervention of which we could have no ideas of religion at all; and the material creation around us is an adumbration or sensible exhibition of the attributes of the invisible Divinity.—His Omnipresence and agency is manifested in every object we behold. Every plant and flower, as it springs upward to maturity, indicates the presence and incessant operation of Him who formed it by his wisdom. Every ray of light descending from the solar orb, is an indication of the presence and glory of Him who is represented as dwelling "in light unapproachable." Were we, in reality, "spiritually minded," were our thoughts and affections properly directed, we would see God in every object and in every event—in the instruments of agriculture, by which the earth is cultivated—in the microscope, which discloses to our view the invisible worlds of life—in the Jewish tabernacle, with all its furniture and utensils—in the history of nations, and the revolutions through which they have passed—in the whirlwind, the tempest, and the refreshing breeze—in the verdure of summer, the storms of winter, the fruits of harvest, and in all the beauties and sublimities of earth and heaven;—and therefore, whatever artificial representations can assist our minds in forming distinct conceptions of such objects must have a tendency to convey instruction, and to inspire us with sentiments of piety and devotion.

3. In order to diversify the topics of preaching, and to render it more interesting and instructive, the

education of candidates for the ministry ought to embrace a more appropriate and extensive range of subjects than that to which it has been usually confined. It is somewhat strange, that, in reference to preaching, the simile has been introduced into our language, "*as dull as a sermon.*" There is no class of orators that has such a multiplicity of sublime and interesting objects and motives at his command, and so extensive a range of illustration, as the Christian preacher. He has the boundless field of the universe, in all its diversified relations, in which to expatiate—all the scenes of Providence which have been displayed in every age since time began—eternity, past and to come, with all its awful and glorious realities—the ruin and the recovery of a fallen world—the virtues, miracles, death, resurrection, ascension, and glory, of Him who is "the image of the invisible God"—the operations of the Divine government in reference both to man and to angels—the powers and agencies of superior intelligences—the perfections of the Deity, and the grandeur of his empire—the moral principles of the Christian system, and the virtues which, if practised, would reunite all the tribes and families of mankind—the hopes and fears of human beings both in regard to this world and to the life to come—the felicity and glory of the millennial church—the scenes of the conflagration, the general resurrection, the last judgment, and the happiness and employments of men and angels throughout an endless duration,—these, with all the endlessly diversified objects connected with them, form so *many legitimate* topics and sources of illustration *to every Christian* preacher. And yet, a sermon is generally characterized as a dull and somniferous composition. If this characteristic be true, the fault lies, not in the *subject* and the narrow range of topics, but in *the preacher himself.*

It is not a little unaccountable, that the series of instruction through which students for the ministry usually pass, is every thing but adapted to produce intelligent and eloquent preachers of the gospel. Almost the one-half of the time devoted to what are called *philosophical* studies is employed in the study of Latin and mere classical literature, while they are never introduced to the knowledge of those more interesting and luminous subjects which have a far more direct bearing on theology and the objects of the Christian ministry. Even the subjects of natural history, natural theology, geography, popular philosophy, and pulpit oratory, are seldom discussed or illustrated in the seminaries where they are taught; and hence may be traced the limited views which are entertained respecting the range of illustration on subjects of divinity, and the little effort which has been made to excel in sacred eloquence. A preacher, in so far as is practicable, should be a man of almost *universal knowledge.* Without extensive information on all the subjects to which I have alluded, he cannot be supposed to enter with spirit and energy on the illustration of such topics, or to exhibit those graphical descriptions, and delineations of physical and moral scenery to which I lately adverted. The time employed in the study of Latin, and classical learning, might be sufficient for laying the foundation of knowledge in all those useful departments of science and religion, which, when thoroughly studied in after life, would "make the man of God complete, and thoroughly fitted for every good work." It is little short of criminality to waste so much time in such studies, while subjects of infinitely greater importance are either overlooked, or altogether neglected. And therefore, if we would render the Christian ministry fully efficient for all the great purposes it is intended to accomplish, we must introduce new arrangements into the plan of our academical instruction. In connection with Biblical criticism, and the study of Greek and Hebrew, in so far as necessary for reading the Scriptures in the original languages, all the branches of natural history, geology, geography, experimental philosophy, chemistry, physiology, natural theology; ancient and modern history, sacred, ecclesiastical, and civil; the progress of the arts; the physical, moral, and political state of the nations—in short, all the facts which can be ascertained in reference to the operations of the Creator in the physical and moral universe, ought to be studied, in so far as is practicable; and no one should be sent forth as a preacher (unless in extraordinary cases) who has not a competent knowledge of such subjects.* Such knowledge would furnish inexhaustible sources of *illustration* on divine subjects, which would both arrest the attention, and increase the general knowledge of the hearers of the gospel. I have always considered it as a characteristic of a good sermon, which the hearers would appreciate, *when an outline of the leading ideas contained in it could be sketched on paper or canvass.* We can paint the outlines of our Saviour's instructions, Paul's sermon at Athens, Moses' farewell address to the Israelites, the speech of the Almighty addressed to Job, and most of the orations of Isaiah, Jeremiah, Daniel, and the other prophets. But this can never be done, unless there be interwoven with the texture of the discourse *tangible* illustrations, borrowed from the subjects to which I have alluded. I may just add, that every candidate for the ministry should pay particular attention to the improvement of his voice and manner of delivery, so that he may be enabled to express his sentiments with a distinct articulation, and with *becoming energy and pathos,* suitable to the nature and solemnity of his subject,—and not, as is frequently the case, like a school-boy reading his lesson with a disgusting monotony. Where there is any natural or acquired defect in the organs of speech, the individual ought to be considered as unfit for the office of a Christian preacher.

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* There appears no necessity for courses of *moral philosophy* in Christian colleges and academies; as every one who takes *Revelation for his guide,* finds the purest and most comprehensive *system of moral science* explained and illustrated by the sacred *writers.*

4. Divine worship should be so conducted that *praise* offered to our Creator and Redeemer *should be appropriate, and accordant with the dictates of inspiration.* In order to this, all the subjects of praise should be taken *directly* from the sacred oracles, and the poetical version into which we throw them should embody, as nearly as possible, *the very language* of the inspired writers, and, in every instance, *the exact sentiments.* The Scottish version of the Psalms of David—though containing many doggrel rhymes, and susceptible of considerable im-

provement—is, perhaps, the most accordant of any with the language and sentiments of the inspired penmen. It is strictly coincident with the common version of the Bible, and where that version is incorrect, the poetical version is likewise deficient in precision and accuracy. But it does not appear to be incumbent upon us either to use the whole of the book of Psalms in our praises, or to confine ourselves to that selection of sacred poetry. The books of Moses, the book of Job, the prophecies of Isaiah, Jeremiah, Daniel, and Habakkuk, the Evangelists, the Epistles, and particularly the book of Revelation, can supply many appropriate passages to direct our meditations in the exercise of praise. But I would lay it down as a principle, that, in translating them into English verse, we should strictly adhere to the *sentiments* of the inspired writers, without interweaving our own paraphrases and comments. I hold it as an axiom, that the inspired writers are the best judges of what is proper to be addressed to God in praise, and that our praises ought to contain nothing but the pure sentiments of inspiration. In opposition to this maxim, we find Independents, Methodists, Baptists, and others, using collections of what are termed *hymns* in public worship, and almost discarding the book of Psalms, as if it were too antiquated a composition for directing Christian worship. Many of the compositions I allude to are vague, enthusiastic, too familiar in their language when addressing the Creator and Redeemer—in many instances exhibit confused and distorted images of divine things, particularly when descanting on the joys of heaven; and their style and manner, as well as some of their sentiments, altogether different from those of the prophets and apostles. To prefer such compositions in our addresses to God, to those of inspired men, is little else than to "forsake the fountain of living waters, and to hew out broken cisterns that can hold no water." I know not a more glaring piece of contradiction than in the pertinacious use of such hymns by the denominations alluded to, since they acknowledge no creed but the Scriptures; and when, in fact, there is a creed—in some instances not very consistent—embodied in the hymn book. The only question to be determined is, Are inspired writers the best judges of what we ought to address to God, and ought we to be directed by them in our devotions, or by the flimsy and erring compositions of fallible man? Private families and individuals may be left to their own feelings and discretion in this respect, but it is scarcely fair to *impose* such compositions on a public assembly.

There is another circumstance, in the exercise of praise, which deserves censure, and that is, *foolish and unmeaning repetitions.* Some tunes used in public worship require the last line of the verse or stanza to be two or three times repeated, whether it contains a complete sense or not; other tunes require *half a line* to be repeated three times, although the pause should happen to be in the middle of a word; so that a worshipping assembly, chiming in with such an absurd practice, appears "like children babbling nonsense in their sports." Such a practice is highly indecorous; it is little short of mocking the Great Object of worship; and were an infidel entering an assembly when thus engaged, he might have some show of reason for declaiming on the absurdities of Christian worship. Those who abet such a practice would do well to consider the import of the Apostle's resolution, "I will sing with the spirit, and I will sing with the understanding also."

II. *The Union of the Christian Church would have a tendency to promote universal improvement.*

The jealousies and mutual recriminations of contending sectaries constitute one of the many causes which have prevented the advancement of society. They have prevented the harmonious co-operation of all ranks and parties in establishing seminaries for the instruction of the young, and for promoting the knowledge of religion in our own country and in other lands; so that society, instead of moving forward as one great harmonious body in the path of improvement, has been shattered into a hundred different parties, each moving in its own direction, sometimes crossing the path of the others, sometimes advancing in an opposite direction, and sometimes clashing and engaging in mutual warfare. This is a state of Christian society which is much to be deplored, and which requires the most serious and solemn consideration of all denominations of the religious world, as to the means which ought to be employed, and the concessions which ought to be made, in order to produce a cordial union of all who appear to be imbued with the spirit of Christianity. Were this desirable object nearly effected, numerous obstructions to the general diffusion of knowledge would be removed, and a new impulse given to the cause of universal improvement. A broad and solid foundation might be laid for the universal instruction of all ranks in the leading truths of religion, and in every department of useful science, without interruption from those sectarian interests and contentions which have hitherto obstructed the rearing of the temple of knowledge and of Christianity. Liberality of views, and a spirit for introducing improvements into the social state, would be more extensively cherished. National reformation would be carried forward with more vigour and effect. Political parties in the State—which are frequently based on sectarian interests and opinions—would be gradually undermined, and all who are "right-hearted men" disposed to co-operate in every measure that has a tendency to promote the general good. The influence of such a state of society would be powerful in procuring the enactment of laws congenial to the spirit of philanthropy, and the dictates of revelation. Missionary enterprises to heathen countries would be carried forward on a much more extensive scale, and with far greater energy and effect, than can now be produced by the separate and insulated operations of sectarian missions. Unity of plan and operation would be introduced into all such expeditions, and a saving in the pecuniary means by which they are carried forward. Money, for all the purposes now stated, would be collected with less trouble and to a much greater amount; perhaps not only double or treble the amount now furnished, but even *tenfold* such sums might be collected, were the spirit of Christian union, and the liberal views which would accompany it, to pervade the whole range of the religious world.

III. *The knowledge of the Scriptures might be pro-*

moted by illustrating various portions of them with appropriate engravings.

We have, indeed, Bibles and Commentaries of all sizes, from a 24mo to a folio, hawked through the country, "embellished" with engravings of different kinds, some of them not a little expensive. But these embellishments are, for the most part, only fit for the amusement of children, and, instead of elucidating the facts recorded in Sacred history, only tend to *distort* them. They consist almost wholly of pictures taken from fancy, in which the manners, costume, architecture, and rural scenery of the Eastern nations, are grossly misrepresented. Among these, we find views connected with Jerusalem, and other cities in Judea, in which the houses are represented with sloping roofs and large arched windows in the modern style, and the streets crowded with *horses* and horsemen, richly caparisoned, like knights-errant or modern dragoons, and holding halberts in their hands. The inhabitants of these countries are represented as wearing neither shoes, stockings, nor sandals, but quite bare from the soles of the feet to the knees. In a picture of the baptism of Christ, he is represented as standing quite naked beside a small rivulet, while John the Baptist is standing on the other side of it, holding a long cross in the one hand, and pouring water from a bason on the head of Christ with the other. In a picture of the *Temptation*, Christ is represented as sitting in something like an elbow chair, with bare feet, a long robe like a surplice, and a glory round his head, while Satan appears addressing him in the attire of a modern female, *standing* upon cloven feet, and having wings attached to his shoulders. Such representations, which may be considered as specimens of most of our Scripture prints, instead of conveying ideas of the facts they are intended to represent, tend only to degrade and *caricature* them. Nothing can be more foolish and preposterous than most of the pictures representing the scenes of Scripture history, particularly in reference to the *anachronisms* they display. Burgoyne, in his Travels, notices a painting in Spain, where Abraham is preparing to *shoot* Isaac with a pistol, and an angel employed in providing that it shall miss fire! There is a painting, at Windsor, of Antonio Verrio, in which he has introduced himself, Sir Godfrey Kneller, and Captain May, surveyor of the works, as spectators of Christ's healing the sick. There was in the Houghton Hall collection, Velvet Brughels' "Adoration of the Magi," in which were a multitude of figures, all finished with the greatest Dutch exactness. The Ethiopian king is dressed in a *surplice, with boots and spurs,* and brings for a present, *a gold model of a modern ship.* Poussion's painting of Rebecca at the well, has the whole background decorated with Grecian architecture. The same artist, in the picture of the *Deluge,* has painted *boats,* not then invented. Some of the Saxon painters put our Saviour, Noah, Abraham, and king Edgar, all in the same habit.

Many useful ideas respecting Scriptural facts may be communicated by means of engravings; but such representations as those to which I allude, should be for ever discarded from our Commentaries and family Bibles. Instead of such absurd exhibitions, delineations of *real objects* should be introduced, as illustrative of some of the facts and descriptions of Sacred history. For example, the plan of the Jewish tabernacle and temple, the altar of incense and of burnt-offering, the ark of the covenant, the tables of show-bread, the golden candlesticks, the brazen laver, and other utensils, as described by the sacred historians—the instruments of agriculture and of music, in so far as they are known, the manner of grinding corn, the plan and form of the Eastern buildings, the war chariots and battering-rams of the ancients—views of modern Jerusalem, with plans of the relative positions of Mount Zion, Mount Calvary, Mount of Olives, the brook Kidron, &c.—views of Bethlehem, Nazareth, Joppa, the ruins of Tyre, Zidon, Babylon, and other cities mentioned in Scripture, as illustrative of the fulfilment of prophecy, which may be collected from the embellishments contained in the works of modern travellers—delineations illustrating the manners and customs of the Eastern nations—maps of Palestine, Egypt, Arabia, Assyria, Idumea, Babylonia, Persia, Greece, the islands of the Mediterranean, and the Roman empire, for illustrating the journeyings of Jesus Christ, the travels of the Apostles, the route of the Israelites through the wilderness, and the descriptions of the ancient prophets. Engravings might also be given of the more remarkable animals, trees, and flowers, to which allusions are frequently made in the Sacred writings. Such views and delineations might be given at an expense much less than what is generally incurred in engraving the paltry and fictitious representations to which we have alluded; and they would certainly be much more congenial to the taste of intelligent readers of the Bible, and much more conducive to the illustration of the scenes described by the Sacred prophets and historians.

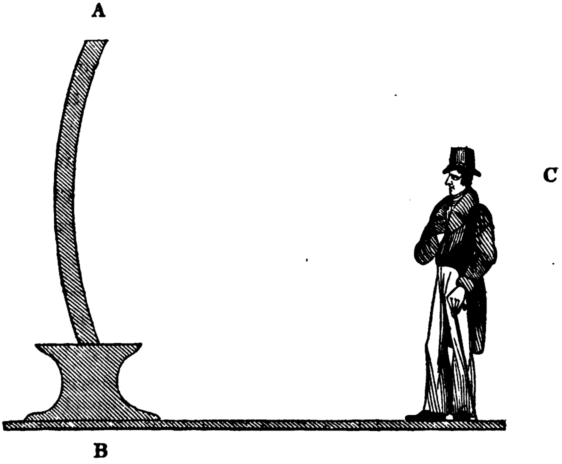
IV. *Knowledge and moral improvement might be promoted by abridging the hours of labour.*

One great objection to the prosecution of knowledge and general improvement is founded on the fact, that the bulk of mankind have not sufficient leisure from their daily avocations for such purposes. This is partly true in regard to merchants' clerks, haberdashers, grocers, apothecaries, and their apprentices and shopmen, and those employed in spinning mills and several other manufactories. In these cases, shops are kept open, and persons employed from six in the morning till eight, and even till ten or eleven o'clock in the evening. But there is no necessity, in order to carry on the business of life, that such long hours of labour and attendance on shops should be imposed either on masters or servants. All the business usually carried on in shops and manufactories could be transacted, without inconvenience to any party, between the hours of seven or eight in the morning, and six in the evening, if proper arrangements were made for that purpose. When once the public is aware that certain shops are shut up at a particular hour, every one would endeavour to supply himself with the articles he required from such shops before that hour arrived; and though they were to be kept open till twelve at midnight, or one in the morning, we know, from experience, that certain individuals would postpone their purchases, till these hours had nearly arrived. In order to prevent any inconvenience to society, by the shops of bakers, grocers, apothecaries, or others, being closed at an early hour, an arrangement might be made to have one shop of every class kept open to a later hour, in every street or district of a town, so that, on any unforeseen emergency, articles of provisions, groceries, medicines, &c. might be procured. Every shopkeeper of this description would, of course, have his turn, in succession, of keeping open his shop during these extra hours, and of reaping, in rotation, the additional profits that might accrue, so that, in the course of a year or less, all would find themselves on an equal footing in regard to the quantity of business transacted, and the advantages gained, by keeping open in rotation their shops till later hours.

There is nothing to hinder the immediate adoption of such arrangements, but that spirit of jealousy which too much prevails among persons of the same profession, and which prevents a friendly intercourse among them for concerting measures for the good of the whole. A few obstinate and selfish characters, in the spirit of contradiction, would, doubtless, set themselves in opposition to such regulations; but as their sordid and avaricious views would be apparent to every one, they would soon be despised and deserted by the respectable portion of the community, and would suffer the natural consequences which almost invariably flow from selfishness and avarice. There is no man who, in such a case, sets himself in opposition to the general good of a community, that ought to be regarded as a Christian; as such conduct is directly opposed to the precept which enjoins us "*to love our* neighbour as ourselves," and "to look *not merely on* our own things, but also on the things of others." Such an arrangement, while it could be injurious to none, would be highly beneficial to all. It would afford leisure for public, private, and domestic intercourse—for attending philanthropic associations, or lectures on any branch of useful knowledge—for improving their minds in wisdom and virtue—for instructing their children, and enjoying the sweets of domestic intercourse—and for taking an active part in all those schemes which tend to promote the best interests of society. In particular, it would afford an opportunity to merchant's clerks, shopmen, apprentices, and others, of attending societies, lectures, schools, or other seminaries of instruction, for improving both their intellectual and moral powers—for want of which opportunities many young persons of this description rise up to manhood in comparative ignorance, and easily slide into the paths of folly and intemperance. But, before such an arrangement is effected, it would be previously requisite that seminaries, such as those formerly suggested, be established, for promoting the instruction of the classes to which I allude, so that their evening hours may not be spent in sloth or licentiousness. In regard to weavers, masons, tailors, carpenters, mill-spinners, and common labourers, eight hours a day employed in labour, instead of ten or eleven, might be sufficient for all the purposes of society. Since the invention of modern machinery, a much greater quantity of labour than formerly can be effected in the same time. It appears to me, that the Governor of the world, in permitting such inventions for facilitating the process of manufactures, evidently intends thereby that the period of human labour should be abridged, in order to afford scope to all classes of society for mental, moral, and religious improvement, and in order to prepare the way for that period when "the knowledge of the Lord shall cover the earth." It ought, therefore, to be considered as a misapplication of machinery when it is employed chiefly for the purpose of enriching and aggrandizing a few individuals, while the mechanic and labourer are deprived both of the physical and moral advantages which it was intended to produce.

V. Knowledge might be promoted *by a proper direction of public amusements.*

There can be no impropriety, at certain intervals, of gratifying the mass of society with an exhibition of public amusements. But such amusements should always be blended, if possible, with moral and intellectual instruction—be congenial to the dignity and the high destination of man—and ought never to interfere with the purity of Christian morals. We have public amusements of various descriptions, such as stage plays, balls, masquerades, horse-racing, cock-fighting, bull-baiting, equestrian feats and exhibitions, tricks of legerdemain, rope-dancing, &c. &c.; but most, if not all, of these, have an immoral tendency, and some of them are inconsistent with humanity, and degrading to the character of man. Instead of such trifling and demoralizing amusements, such exhibitions as the following might be adopted:—1. *Air balloons*, of a pretty large size, which might be sent up into the atmosphere either with or without living beings, and might be rendered subservient for *investigating* atmospherical phenomena, the *different currents* and electrical states of the air, and other particulars. At the same time, descriptions and explanations might be given to the assembled multitude, of the nature of balloons, the principle on which they ascend, the mode of inflating them, the facts which have been ascertained by means of them in regard to the upper regions of the atmosphere, the nature and use of the *parachute*, and various details in relation to aerial navigation.—2. *Panoramas*, or perspective exhibitions, on a large scale, of ancient and modern buildings, cities, towns, ranges of mountains, sea-ports, volcanoes, grottos, romantic rural scenery, and whatever is grand, beautiful, and interesting, in the scenes of Nature and Art. Such panoramic scenes, while they could not fail to gratify every spectator, would convey to the mind ideas which could not be derived from any other source, except the actual view of the objects represented.—3. *Camera obscuras*, on a large scale, constructed in the manner formerly described, (p. 376.) If these were constructed with large lenses of twenty or thirty feet focal distance, their magnifying power, on distant objects, would be equal to that of a telescope magnifying from thirty to about fifty times, which would show the distant scenery of a country with great minuteness, and people, sheep, and other animals, at the distance of many miles, while more than a score of persons at *one time* might contemplate such a scene.—4. *Telescopes*, constructed of a single convex lens, or a concave speculum of a long focal distance, for example, from twenty-five to forty feet, might be fixed in certain positions, so that several individuals at the same time might perceive their effect on distant objects. Sir W. Herschel inform us that, by looking with his naked eye on the speculum of his forty feet telescope, without the interposition of any lens or mirror, he perceived distinctly one of the satellites of Saturn; so that such an instrument would present a brilliant view either of the moon or of terrestrial objects. The manner of looking at objects with such an instrument is represented below, where A B represents a concave mirror or



speculum of a long focal distance, C the focal point, a little within which several spectators might stand with their faces to the speculum, and view the distant objects behind them. Were A B a large convex lens of a similar focus, the spectators could stand in a similar position and view the objects *before* them. —5. *Philosophical and chemical experiments*, of various descriptions, on a large scale, might be exhibited—such as the explosion of a bladder full of *oxygen and hydrogen* gas, by means of an electri spark, which produces a tremendous sound—the breaking of a piece of glass or bladder, or a large square bottle, by the pressure of the atmosphere—the burning of charcoal or phosphorus in oxygen gas, which produces a most brilliant illumination—the ascent of turpentine, when tinged of a red colour, through water in long glass tubes, which produces a beautiful effect—the burning of spirits of wine, after having been boiled, which produces an extensive and beautiful jet or spout of fire—the Chinese lights,* and an indefinite variety of similar striking experiments, all of which might, at the same time, be familiarly explained.

Such exhibitions might be made either in large halls, in squares, or in open areas in the neighbourhood of towns, according to the nature of the exhibition; and the best instrumental *music* might accompany them, and might occasionally be enlivened by the surrounding multitudes joining in unison with their voices. The expense of such exhibitions would be far less than the sums generally wasted in the encouragement of horse-racing, theatrical diversions, and similar amusements; and, while they tended to increase rational information, and to gratify the principle of curiosity, would be much more congenial to the taste of intelligent minds. There are certain towns in this country whose magistrates give, from the public funds, more than a hundred guineas annually for the encouragement of horse-races, besides the expenses connected with the various preparations and erections deemed necessary on such occasions. Such sums, along with a small contribution from each individual, (for example, an English penny or twopence,) would, in general, be adequate to defray the expenses of such exhibitions.

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* The *Chinese lights* are produced by the following composition: —Take twelve parts of nitre, five and a half of sulphur, one-half of orpiment, one-half of indigo, one-half of gunpowder, all finely pounded and intimately mixed. When this composition is set fire to by a burning match, it produces a most splendid illumination. In the year 1814, when peace with France was proclaimed, a friend of mine, at the request of the magistrates of Paisley, got a large quantity of this composition prepared, which was ignited on the parapet which surrounded the spire of the High Church of that town, and which burned for more than half-an-hour, producing the most brilliant illumination over all the town, and was an object of curiosity at Glasgow, about eight miles distant. It would be visible from elevated situations more than thirty miles distant. Such was the splendour of the light, that the birds rose from their nests, and flew around it, as if it had been the rising sun. At the same time, a balloon, made of the *allantois* of a calf, was sent up into the atmosphere, and a number of large bladders, filled with oxygen and hydrogen gas, were exploded, by being held in the Chinese lights, which produced sounds which were heard over all the town. The composition expended on this occasion cost about ten pounds; but a quantity sufficient for a common experiment may be procured for two or three shillings.

VI. Knowledge and rational enjoyment might be increased *by erecting observatories in every town and populous village*.

These observatories might be furnished, not only with some of the best achromatic telescopes for viewing terrestrial and celestial objects, but likewise with several articles of philosophical apparatus, and specimens of natural history. In studying the science of the heavens, there is nothing more gratifying to those who have acquired a relish for this subject, than to view the telescopic objects described by astronomers, such as the moons and belts of Jupiter, the ring of Saturn, the crescent of Venus, the mountains and vales of the moon, the nebulæ, the double stars, and other interesting celestial phenomena.

Such views tend to produce a higher relish for astronomical studies and rational investigations; and no pictorial representations can serve as a substitute, or convey the same ideas as actual observations by good instruments. But the majority of rational inquirers and of the community at large are deprived of such views, on account of the expense of such instruments. An establishment of this kind might be set on foot, either by a grant of money from a public fund, or by subscription. All the instruments requisite, in the first instance, would be, a large achromatic telescope for viewing celestial phenomena, and an *equatorial telescope*, for illustrating *practical* astronomy, and viewing the stars and planets in the daytime. These might be purchased for about forty guineas, (see article Astronomy, pp. 342, 345,) and if an hundred and twenty individuals were to co-operate in such an undertaking, the subscription would be only seven shillings to each, and, if an additional subscription of about two shillings a-year were paid, in the course of a few years the apparatus might be considerably increased. One special advantage arising from the universal establishment of observatories would be, that the *true time* might always be accurately ascertained, and the public clocks regulated accordingly—on which circumstance depends, in certain cases, the determining of the altitude of certain atmospherical phenomena, such as a fiery meteor, or a luminous arch, when seen by different observers in places distant from each other.

VII. *The improvement of towns, villages, and roads*, is intimately connected with the advancement of society.

There are few circumstances in the state of society which exhibit the folly and depravity of man in a more striking point of view, than the state of most of the cities and towns of Europe and other parts of the world—not even excepting the British empire. In some of our cities we have palaces, churches, colleges, and public buildings, of the most magnificent description, while the great mass of the population around are living in miserable habitations in narrow dirty lanes, which are seldom or never visited by the rays of the sun, or the refreshing breeze. In the High street of Edinburgh and its environs, which contain a greater number of human habitations than any other spot of the same extent on the surface of the globe, the inhabitants appear to be huddled together like so many rabbits in their cells. The houses are from five to eight and ten stories high, with numerous narrow lanes or *closes*, from four to six feet wide, branching from the street, and running down a great extent towards a hollow on each side. In these closes there is neither light nor pure air, but a continual gloom and noisome exhalations; and the physical filth and darkness which abound are generally emblems of the moral pollution and scenes of depravity which are too frequently exhibited in such habitations. Such abodes are incompatible, not only with physical comfort, but with any attempts at improvement in knowledge; and it is a kind of degradation to the nature of man, that any human beings should be doomed to spend their lives in such wretched habitations. It tends, not only to debase the moral character, but to prevent the expansion of *the human intellect*. Instead of an extensive landscape, adorned with flowers and verdure, and the view of the expansive canopy of heaven—the inmates of such dwellings, for months and years, have nothing presented to the eye but a dead murky wall bespattered with filth, which confines the range of their vision within the compass of a few feet, and prevents them from becoming acquainted even with the common scenes of nature. What has been now stated will apply in a greater or less degree to almost all our cities and large towns, and even to some of our villages. Were we to inquire into the circumstances which led men thus to immure themselves in gloomy holes and corners, like bats and owls, we should doubtless find that the abominable system of warfare has been one of the chief causes of the evil of which we complain. Man, living at enmity with his fellow-man, judged it expedient to surround his habitations with a huge wall for protection against the inroads of his hostile neighbours;—and the problem to be solved, in this case, seems to have been, ‘ In how small a space can we compress the greatest number of inhabitants, so that our wall and fortifications shall cost us the least trouble and expense?’ Small towns and villages which were afterwards built, and which required no fortifications, copied the plan and dimensions of their streets from the fortified towns, and thus the whole of our cities, towns, and villages have been bungled and deranged.

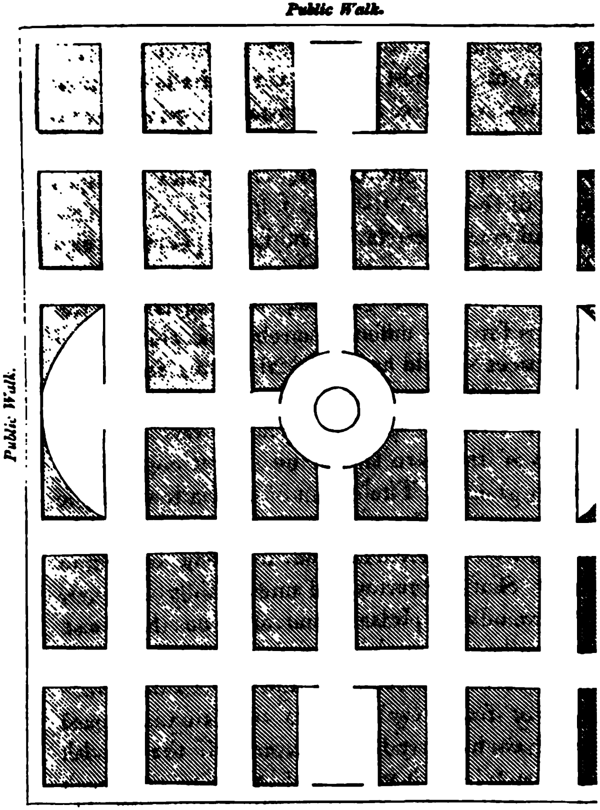
Great cities, especially when ill-planned, may be considered as great evils. The Creator evidently intended that the population of the globe should be more equably distributed than it is at present. We are told that “ He created it not in vain, but formed *it to be inhabited.*" But, how monstrous a disproportion is there in the distribution of its population, when we find a mass of human beings, as in London, compressed into a space of little more than 20 square miles, and a similar mass, in another part of the same island, spread over an extent of 20,000 square miles! There appears to be no reason, except in a very few cases, why any city should extend beyond a population of a hundred thousand inhabitants; and a city containing such a population should occupy five times the area that it does at present. Towns distributed at nearly equal distances over the face of a country, would be of far more importance for the general improvement of society than a few crowded cities with an overgrown population, and more conducive to the health and morals of the inhabitants.—There is one circumstance that characterizes almost all our cities, towns, and villages, except in some recent instances; and that is, *the extreme narrowness of the streets*, some of which do not exceed 15 or 20 feet in width. Even in the United States of America, where the towns have been more recently built, and formed on more expansive plans than in Europe, this evil is found to exist. The street *Broadway*, in New York, which is so much celebrated, and which is 3 miles in length, is only 80 feet broad, and most of the other streets are considerably narrower. Most of the streets in Philadelphia are little more than 50 feet broad, except *Broad street* and *Market street*, the latter being 100, and the former 113 feet in breadth. Most of the small towns, however, in the *Northern States*, such as New-Haven, Northampton, *and others*, are described by travellers as having broad streets and spacious squares, and remarkable for their cleanliness and beauty. In Great Britain, most of the streets, especially in sea-port towns, are wretchedly narrow and dirty. In North-Shields, county of Northumberland, the main street is nearly a mile long, but so narrow that in many places two carriages cannot pass each other. The New Town of Edinburgh, which contains the most spacious and elegant streets of any city in Europe, is disgraced with two or three long narrow streets, not above one-fourth the breadth of the others, intended for the residence of the lower classes; as if they had no right to enjoy a free light, pure air, and a cheerful prospect, as well as their superiors.—The following hints are suggested in relation to the improvement of towns and villages; though I have no hope of living to see them realized in my native country.

1. Most of our crowded towns should be demolished, or at least their streets ought to be widened, at an average *three times* their present breadth. Extravagant as this proposal may appear, there is nothing that stands in the way of its accomplishment but *selfishness* and *avarice*. If the promotion of the comfort and happiness of our species were the great object of our ambition, all difficulties would soon evanish, and all obstructions would speedily be removed; and why call ourselves *Christians*, if this object is not kept in view?—2. No street in any town or village should be less than 80 feet wide. In large towns, where the houses are above two or three stories in height, the streets should not be less than 100 or 120 feet in breadth.—3. Narrow lanes and *closes*, of all descriptions, ought to be for ever ba-

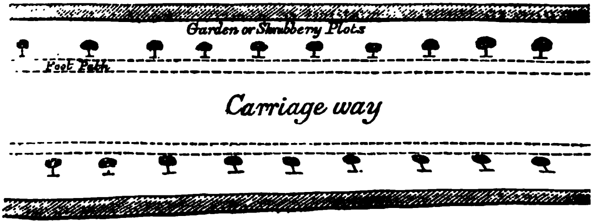
nished from all our towns and cities.—4. The practice of *sinking stories* below the level of a street, unless for cellars, should be laid aside. It has become an almost universal practice in Edinburgh, and other towns, especially in genteel houses, to have a *sunk* story for the kitchen and servants' rooms, as if they were unworthy of enjoying free light and pure air, and their health in no danger from the dampness of such apartments. There is something absurd and preposterous in being at the expense of digging a hole for the under story of a house, when a kitchen and laundry could be built behind the house, on the level of the street, which would be more convenient and salubrious.—5. Houses might be built with *flat roofs*, with a parapet surrounding them, breast high, which would form a promenade for families in towns, where they would enjoy an airing and a prospect of surrounding objects, without removing from their own dwellings. It would also serve for drying clothes, contemplating the heavens, and various other purposes. In Eastern countries, where the houses are constructed with flat roofs, they form the sleeping places of the family during the summer months. The rain that falls upon them might be so conducted as to supply every family with water for washing, and cooking victuals.—6. Squares, crescents, or octagonal spaces, should be appropriated in different parts of a town, for bazaars, or shops where all kinds of merchandise should be sold; each shop having an apartment or two connected with it, for the temporary accommodation of a family.—7. The streets more particularly appropriated for dwelling-houses, should *have verandas or* garden-plots in front of the houses on each side, diversified with shrubs, flowers, and evergreens, and, at certain regular distances, a few forest trees, so that the street, although 80 feet broad, would require only about 40 feet of pavement. —8. In every large city, open spaces, within the city, should be set apart for pleasure walks for the citizens, and diversified with trees, evergreen shrubs, seats, and bowers for shelter from the heat or rain. In small towns, such rural walks should be formed to go quite round them.—9. A square plot of meadow ground, at each end of a town, might be set apart for public meetings, amusements, or exhibitions, which might also serve for grazing, bleaching, promenading, and other purposes.—10. Certain streets might be allotted for houses of one or two stories, for the accommodation of those who have it not in their power to occupy more stately mansions, so as to preserve uniformity in every street; but such streets should be equally broad, and adorned in the same manner as the other streets.—11. Between the different streets should be garden-plots for every family, and accommodation for washing and bleaching, as also for erecting workshops for smiths, carpenters, weavers, &c. wherever they are required.—12. Encouragement should be given in the neighbourhood of large towns, and throughout the country at large, for building towns on such plans, and for transforming our present hamlets and villages into more convenient and pleasant places of residence. If mankind were united by the bonds of Christian affection, and if all were as anxious to promote the happiness of their fellow-men, as the greater part are to hoard up wealth and riches which they can never enjoy, all the improvements now suggested could easily be accomplished within the course of a few years, or, at farthest, within the limits of the next generation. But so long as avarice sways its sceptre over the human breast, no extensive improvement, either in knowledge, religion, or physical comfort, can be effected.

The following engraving exhibits a plan of a town of a moderate size, which, with a few modifications, according to circumstances, might be copied, in the formation of new towns and villages. In this plan all the streets cross one another at right angles, and are supposed to be at least 80 feet broad. In the centre there is a circular space about 240 feet diameter, from which four streets diverge to each quarter of the town. The central part of this circle might be formed into a bowling green, diversified with shrubs and flowers; or a circular tower might be erected in the midst of it to overtop the surrounding buildings, on the top of which a large camera obscura and some telescopes might be placed, for the purpose of surveying the heavenly bodies, or the surrounding country. The four openings into this circular space might be about forty feet wide, or half the breadth of the streets, which would afford the houses at each end of the four crescents a commanding view, not only of the interior of the circle, but of the whole street in both directions. Instead of a circle, an *octagon*, if judged more convenient, might be adopted. Directly opposite this central circle, on the north and south extremities of this town, are two squares, each of whose sides is about 170 feet long, and at the *east and west* extremities two crescents, about 360

PLAN OF A SMALL TOWN.



PLAN OF A STREET.



feet in diameter. In each of the squares, and in the middle part of the crescents, a church or other public building might be erected; and the entrance to these squares, &c. from the country, might be by a broad arch-way under one of the buildings. The principal shops might be placed, and the principal business of the town transacted, in the squares, crescents, and central circle. The spaces between the backs of the houses in the different streets might be set apart either for gardens, washing-houses, or workshops for the different mechanical professions. These spaces should be from 120 to 150 feet wide. A walk should be made to go round the whole town, decorated with trees, shrubs, and bowers; and on each side of the town should be a large common or bleaching green. The extent of such a town would be about a mile and a quarter in circumference, but might be indefinitely extended according to circumstances. Such a town would undoubtedly be much more commodious, pleasant, and salubrious than most of the small towns and villages that now exist.

VIII. *Knowledge might be diffused at a cheap rate by means of itinerating libraries.*—Of late years small libraries have been established in most of our populous villages, and in connection with christian churches; but the want of sufficient funds prevents the purchase of such a variety of books as is sufficient to keep alive the attention for any number of years. In the year 1817, the plan of itinerating libraries was suggested by Mr. Samuel Brown of Haddington, and, under his auspices, was commenced in East Lothian and the neighbouring districts. The object is, " *to furnish all the towns* and villages of the country with libraries of useful books, and to plant them at such distances that no individual may be more remote from one than a mile and a half." "The books are formed into divisions of fifty volumes each. One of these divisions is stationed in a place for two years, and the books are issued to all persons above twelve years of age who will take proper care of them. After that period it is removed to another town or village, and a new division is sent in its room, which after other two years is again exchanged for another." By this means a perpetual succession of new books is introduced into each town and village, the principle of novelty is gratified, and the interest of the readers kept alive. The books are kept for a few years for the use of annual subscribers of five shillings. They are afterwards formed into divisions of fifty volumes, and are lent the first year for one penny a volume, (provided it is not kept longer than one month,) and gratis the second. One of the principal features of these libraries is their *cheapness*. A single library of fifty volumes, with book-case, catalogue, labels, advertisements, and issuing-books, may be procured for about £10 at an average, as they are purchased on the most economical plan. Were a British and Foreign Itinerating Library Society established in London, that could raise £10,000 annually, it is calculated that, in conjunction with the small sums furnished by the readers, there could be established, in the course of twenty years, a library for every 524 persons in Great Britain and Ireland, taking the population at twenty millions; and in twenty-five years, for every 294 persons, which would be a complete supply for the wants of the whole population. And what would such a sum be to the British Government, which is extravagant enough to waste twenty times that sum every year in bestowing *pensions* on those who neither deserve them nor stand in need of them? The great object of these libraries is to promote the interests of religion, in connection with the study of history, biography, voyages and travels, and all the popular and useful branches of science. They have been supported and patronised by the most respectable persons in the country, and have met with almost unprecedented success. They have been introduced into several other counties in Scotland and Ireland, and in some of the West India islands, and even in South Africa. The number of volumes connected with the East Lothian itinerating libraries now amounts to nearly three thousand. In some of the divisions every volume has been issued about 120 times, and many of them much oftener. Mr. Brown, who has directed and superintended these libraries for eighteen years, deserves the thanks of his country for his benevolent and unremitting exertions.* In several cities and towns in America, such as Philadelphia and Albany, libraries have been established for the use of *apprentices*, both male and female. The apprentices' library in Philadelphia contains above 8000 volumes. Although well-selected libraries are of immense importance for the diffusion of knowledge, yet no person, who has it in his power to purchase a few good books occasionally, ought to *confine* his reading to the books of a public library; but, in conjunction with the use of such books, should endeavour to furnish himself with selections of some of the best standard books in the language, which he may study at leisure, and to which he may immediately refer for any particular information of which he is desirous. Every general reader should, if possible, be furnished with an English Dictionary, a portable Encyclopedia, a summary of universal history, and some of the best systems of popular science.

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* Mr. S. Brown is a son of the Rev. John Brown of Haddington, well known as the author of the "Self-Interpreting Bible," "Dictionary of the Bible," "System of Divinity," and many other works. His exertions, and the beneficial effects which have flowed from them, show how much even an individual engrossed in an extensive business has it in his power to perform, when his aims are directed to promote the good of mankind.

IX. Knowledge might be promoted *by delineations and inscriptions on various articles of furniture.*

We have, for example, many kinds of bowls, drinking vessels, &c. made of porcelain or earthenware, on which many foolish inscriptions and devices are engraved. We have likewise carpets, bed-curtains, handkerchiefs, &c. on which groups of fantastic figures, and various distorted representations of natural and artificial objects, are depicted, which serve no purpose but that of exhibiting a gaudy show.— Now, if, instead of such paltry devices, moral sentiments and maxims, pithy sayings, and sentences descriptive of certain historical and scientific facts, such as those formerly specified, (pp. 205–6—256.) were inscribed on the articles to which I allude, useful hints might be communicated and rendered familiar wherever we turned our eyes, and might occasionally suggest topics for useful conversation. In like manner, were *real objects* in nature and art depicted on china-ware, drinking vessels, printed cotton handkerchiefs, window-curtains, carpets, and similar articles, in place of the fantastical figures usually delineated, which have no prototypes in nature, a considerable portion of information might in this way be imparted. For pictures, when true to nature and correctly delineated, convey useful knowledge as well as books, and sometimes in a more pleasant and rapid manner; and there is no more difficulty in engraving *real* objects than in depicting the distorted and fantastic objects which are usually represented; and in course of time, every rational person would be induced to consider every thing as *beautiful* which is really *useful.* In following out these suggestions, we might have paper hangings and carpets diversified with maps of the world and of particular countries—bed and window curtains adorned with public buildings, landscapes, views of caverns, grottos, volcanic mountains, cataracts, steam-carriages, air-pumps, telescopes, foreign trees, shrubs, and animals—our plates, tea-cups and saucers decorated with miniature pictures of similar objects, accompanied with wise sayings, immutable truths, and short statements of important facts. In this way a fund of sententious wisdom, in connection with views of interesting scenery, might be introduced into every family; which would tend to excite inquiry, to lead to improving conversation, and to deter from the pursuit of vicious and criminal courses. A king was said to have been saved from being poisoned by his cup-bearer, by the following motto engraved on the cup which contained the poison, "Never *begin* any action of which thou hast not well considered the *end.*"—It is evident, that the above hints might be reduced to practice with as much ease and cheapness as silly and licentious inscriptions and clumsy castles in the air; and that almost every article of dress and furniture, every *garden bower,* and every rural and architectural decoration, might in this way be rendered subservient to human knowledge and improvement; provided society would give encouragement to such devices. But, hitherto, the foolish and depraved character of man has displayed itself in this as well as in almost every other department of his actions.

X. The improvement of society requires *that changes and alterations be made in many of our established laws, regulations, and customs.*

The laws and practices to which I allude are so numerous, that I shall mention only two or three as a specimen. 1. *All taxes connected with the diffusion of knowledge should be wholly and for ever abolished.* These include taxes on the materials and the manufacture of paper, which, besides directly adding to the price of this article, are found to be extremely vexatious to the manufacturer, and prevent him from getting his articles rapidly conveyed to the market—taxes on newspapers, engravings, pamphlets, periodical works, and advertisements of books and other articles of trade—and taxes, too, in the shape of entering books in "Stationers' Hall," depriving the author or publisher of thirteen copies of his work, however valuable and expensive, which in certain cases will amount to the sum of £200 or £300. Were these and all other taxes connected with literature abolished, and an economical mode of printing adopted, books might be purchased at little more than one-half of their present price. In this connection, too, it may be stated, that the charges demanded for the insertion of advertisements of books in newspapers, magazines, and other periodicals, are *extravagantly high*, and add, in no inconsiderable degree, to the price of literature. In consequence of the tax on newspapers there are only 30 millions of them circulated in Great Britain and Ireland, which is but the *one twenty-fifth* part of the number circulated in the United States of America, which contain little more than half the population of the British empire. In England there is only one newspaper to 46,000 inhabitants.—2. *The postage of letters should be greatly reduced.* The conveyance of letters is scarcely a fair subject of taxation, if we wish to facilitate the interchange of sentiment and friendship among mankind. It tends to prevent the poor man from corresponding with his friends and relatives at a distance—to prevent communications being sent to periodicals—and to abridge the correspondence of men of literature and science, some of whom have very little money to spare. I have known persons of this description taxed in this way, to the amount of three or four shillings, and even of half-a-guinea in one day, when such sums were imperatively required for procuring the necessaries of life.—It is likewise unfair, and absolutely unjust, that the inhabitants of villages, who are generally poorer than those in towns, should pay more for letters and newspapers than others. While a person in a large town receives a daily newspaper from London *gratis*, the villager, only four miles farther distant, pays for the conveyance of the same paper, *twenty-six shillings a year*, besides paying an additional penny for all his letters.* The postage of letters should be so regulated that all may enjoy an equal benefit—that every facility may be afforded for transmitting them to foreign countries, whether belonging to the British dominions or not,—and the charge for letters and packages should be *no more than what is sufficient to defray all the expenses of the Post-office establishment;* as is the case in the United States of America. Under certain regulations all *proof sheets* of any work sent to the author for corrections *should be free of postage.* In these and many other respects our Post-office regulations require a thorough investigation and amendment.[*] —3. The names of ships and steam-vessels should be painted in large characters on the most conspicuous parts of these vehicles. If the names of ships are intended to distinguish them from each other, it appears preposterous and truly ridiculous, to have the name depicted on the lower part of the stern, which always stands in an oblique position, and which is seldom or never seen, when approaching another vessel or towards the shore. If the name of a vessel were painted in large characters on each side of the bow, it might be distinguished by a good telescope at the distance of four or five miles, whereas it is sometimes difficult to read the name of a vessel on the stern at the distance of a few yards. As it is interesting in many cases, not only to the owners of ships, but to those who have friends and relatives on board, to be able to distinguish any particular vessel, when it first makes its appearance, the hint now given cannot be deemed altogether unimportant.—4. The practice of paying waiters, chambermaids, boot-boys, and ostlers at inns, servant-maids, &c. at private houses, and guards and postilions in stage-coaches, should be universally discarded—as creating unnecessary trouble and expense to travellers, and fostering a spirit of meanness, impudence, and avarice, in the persons occupying such situations. It would be conducive both to the moral and pecuniary interests of all parties concerned, were such customs abolished. Mr. Stuart informs us, that no such custom prevails in the Northern States of America, and that it would be considered in almost every instance as an insult, to offer such persons a gratuity for performing their duty. This absurd and degrading practice has been handed down to us by the aristocracy, the servants of whom are always on the watch for gratuities from strangers and visitors. A literary gentleman, Dr. ——, who had frequently been invited to dine with Lord ——, was one day accosted by his lordship, and asked why he had not for a long time past complied with his invitation to dinner? "Why," replied the doctor, "because I cannot afford it; I can dine at my own apartments for less than two shillings, but when I dine with your lordship it costs me at least *five* shillings—every one of your servants, at my departure, holding out his hand, and expecting a half-crown or a shilling at least to be given him."—5. Another abominable custom which prevails at public meetings, and which should be discarded, is, *hissing* and groaning at certain speakers, or at the sentiments they express. A hiss or a groan may display the malignity of those who utter it, and their antipathy to the opinions expressed, but it never embodies a *reason* or an *argument* to confute the speaker, or convince the audience of the futility of his sentiments. In all deliberative assemblies, every speaker who conducts himself with decorum should be listened to without *interruption*, and *facts* and *arguments* brought forward *to confute his positions*, if they be untenable. To attempt to put down a speaker by hisses or groans is inconsistent with the dignity of an assembly of rational beings—is characteristic of a rabble, or a company of boors, rather than an assemblage of men of intelligence—and generally indicates the *weakness of the cause* which such conduct is intended to support.—6. *Our civil and criminal codes require to be simplified and re-modelled, and formed on the principles of equity and natural justice.* Many of their enactments are repugnant to reason and religion, and inconsistent with the dictates of philanthropy and common sense, and with the spirit of an enlightened age. The *expense* of law processes, as presently conducted, amounts to a prohibition of a poor man's obtaining justice in any case where he has suffered an injury; and the multiplicity of statutes and precedents, the vagueness of their language, and the unintelligible jargon of terms and phrases connected with them, frequently lead to almost interminable litigations, till the whole value of the subject in dispute is more than expended, and the litigants reduced to poverty. Our *civil* code requires to be cancelled, and reconstructed, *de novo*, on principles similar to the "Code Napoleon"—and our *penal* statutes require to be remodelled in such a manner, that punishments may be proportioned to crimes, and that they be of such a nature as to promote the *reformation* of the criminal.

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* *Here I allude to the Penny posts* lately established in most *of our villages.*

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[*] In America the postage for 30 miles is 6 cents, equal to 3d. English; 80 miles, 10 cents; 120 miles, 12½ cents; 400 miles, 18 cents, &c.

The above are merely *specimens* of customs, laws, and usages, which require to be either modified or abolished, in order to promote the advancement of society.

XI. The diffusion of knowledge, and the improvement of mankind, are, in some measure, dependent on *a friendly intercourse* being established among all *civilized nations.*

Hitherto, nations, even those that are adjacent to each other, have acted towards other nations with a spirit of selfishness and jealousy, as if they were beings of a different species, and had no common relation as brethren, or as children of the same Benevolent and Almighty Parent. Harassing restrictions, duties, excise regulations, and every other impediment, are thrown in the way of travellers, when passing from one country to another, as if the interests of one class of human beings were set in opposition to those of another. When a traveller passes from England to France he must pay for a passport, and should he happen to lose it he is treated as a rogue or a spy. When he passes from Holland to Britain, and carries an old Dutch Bible along with him, before he can convey it from the shore he must pay a duty to the amount of far more than its value. When he is about to embark at Liverpool for America, his trunks and packages are searched, duties demanded, and a host of petty tyrants under the excise vex and harass him in all his arrangements; when he lands on the other side of the Atlantic, he is subjected to a similar ordeal; and when he returns to England with a few volumes of American literature, his luggage is again subjected to a strict scrutiny, and he must pay a shilling for every pound weight of knowledge he has imported."* Besides the spirit of warfare, which has so frequently interrupted the correspondence of nations,—such harassing and vexatious restrictions have a tendency to foster a principle of antipathy, and to impede the progress of knowledge. They are founded on a principle of selfishness and malignity, and, like all such principles, they frustrate even the pecuniary object they were intended to promote; for, in point of fact, so far from increasing the wealth of a nation, they tend in many ways to diminish its resources. Were all such restrictions and exactions abolished, philanthropic travellers might make a tour through the nations without being annoyed—the manufactures and natural productions of every country could be afforded at a much cheaper rate than at present—and the hundred thousands of pounds and dollars annually expended in keeping up a numerous retinue of excise officers and underlings, would be saved for the purposes of national improvement. The most enlightened political economists now agree that Free Trade

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* The following instance, among many others, shows the harassing nature of custom-house restrictions:—A. Davidson, A. M. a celebrated lecturer on experimental philosophy and chemistry, after having returned from Ireland to Liverpool, had his packages, containing an extensive apparatus, thrown into the custom-house, which were not permitted to be removed till they should *be minutely* inspected. They consisted chiefly of glass cylinders, globes, receivers, &c. of all descriptions, which required several days and much exertion to get packed; and the could not be unpacked, in such a situation, without considera

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expense and great loss of time, and the risk of having a great part of the apparatus broken and destroyed. He offered to unpack them in the presence of excise officers, in the apartments he had procured for the purpose; but this was refused. He called day after day at the custom-house about the matter, but to no purpose. One underling gave him a sealed card, containing about two lines of writing, to carry to another underling, for which he charged half-a-crown; this last gave him a similar card to a third person, for which the same charge was made; this third person gave another *half-crown card*, to be handed to a fourth person, who could give him the requisite information, but this fourth person could never be found; and thus he was bandied about from one harpy to another, and filched out of four or five half-crowns. In this way, three weeks were wasted to no purpose, till by accident he met with a gentleman connected with the custom-house, with whom he was formerly acquainted, who got his packages released, after he had been subjected to much trouble, expense, and anxiety, and lost nearly a month, during which his lectures might have been nearly finished. Regulations which lead to such impositions and perplexities require to be speedily abolished.

should be universally encouraged, and that extraordinary restrictions upon the importation of goods is injurious to the wealth and prosperity of nations.

XII. The improvement of society requires that particular attention be paid to the intellectual and religious instruction of *seamen.*

The British navy includes about 30,000 men; the British merchant service about 220,000, of whom about 100,000 are engaged in the coasting trade, and 120,000 in the foreign trade. The coast-guard service includes 21,000 individuals; and there are of fishermen, watermen, and boatmen, probably not less than 50,000 persons, besides their families, amounting in all to above 320,000 individuals, exclusive of their wives and children. An immense number of this class of men is likewise connected with the United States of America, but I have no data on which to form an estimate of their amount. A great proportion of these persons have been brought up in debasing ignorance, both of general knowledge and of the truths of religion, and they are too frequently addicted to habits of profaneness and intemperance. They form, however, a most important and interesting class of our fellow-men—they are frequently distinguished for heroism, humanity, and a noble generosity; and, were they generally instructed in useful knowledge and Christian morals, they might be rendered useful agents in promoting the good of mankind both at home and abroad. The "British and Foreign Sailors' Society" was formed sometime ago, "for promoting the moral and religious improvement of seamen." Of this society Lord Mount*sandford is president*; Alderman Pirie, and G. F *Angas, Esq.*, treasurers; the Rev. Dr. Cox, and t

Rev. T. Timpson, secretaries—gentlemen distinguished for their activity in every department of philanthropic labour. The principal scene of their labour is the port of London, where the gospel is preached, and prayer meetings held on board ships, every evening, by agents of the society, who distribute Bibles, religious books and tracts, and enter into conversation with the seamen on moral and religious subjects. They have already spent upwards of £2000 in fitting up a chapel and other buildings, and have provided 140 "Loan Ship Libraries," comprising 4000 volumes, now abroad in many vessels; and 50 small libraries for the fishing smacks sailing from the Thames; besides the "Vestry Library," which contains upwards of 3000 volumes, daily open to sailors in the depot of the chapel;—but the want of adequate funds prevents them from enlarging the sphere of their operations. To complete such benevolent arrangements, it would be requisite, could funds be procured, to establish schools on a moral and intellectual principle, some of them adapted to the *children* of sailors, and others for the rational instruction of adults. Lectures on popular science, accompanied with experiments, might likewise be occasionally delivered; and the religious books contained in the libraries blended with popular and interesting publications on geography, astronomy, experimental philosophy, history, voyages, travels, and other departments of knowledge. Were sailors well instructed and moralized, they might improve their own minds by reading and conversation, during long voyages, and feel a superior degree of enjoyment to what they now experience; they might be the means of promoting both knowledge and religion in foreign lands—they might soon be accustomed to contemplate with intelligence the various scenes of nature which pass under their observation, and record them for the information of others—and thus become contributors to science, and benefactors to their species, instead of "increasing," as they often do, "the transgressors among men."

XIII. In order to carry into effect the hints suggested in the preceding pages, *societies might be formed for the promotion of education, and the general improvement of the social state.*

From the operations of Bible and Missionary Associations, it is evident how much may be achieved by the formation of societies for the accomplishment of a specific object. The societies to which I allude, including the Church Missionary, Scottish, London, Wesleyan, and several others, now raise nearly £300,000 annually. The general object I would propose to accomplish by a new association, is as important as any other which has yet engaged the public attention; for it lies at the foundation of all other philanthropic plans, and they can never be brought into *extensive* operation till it be accomplished. If all ranks were thoroughly instructed in knowledge and religion, and, consequently, led to appreciate the importance of Christianity, and the necessity of its universal propagation, the funds of our missionary institutions, and the energies with which they would be conducted, would be increased tenfold more than they now are, and few individuals would be found altogether indifferent to such noble enterprises. Such an association might be *instrumental in calling* the attention of the public to the *subject—in diffusing* information respecting it—

detailing plans for accomplishing the grand object intended—in illustrating the noble and beneficial effects which would flow from its accomplishment—and in exciting the more wealthy members of the community to contribute a portion of their substance for carrying forward the requisite arrangements. By such a society, with all the auxiliaries that might be formed throughout a nation, it would scarcely be too much to expect that a million of pounds might annually be procured, which would render society nearly independent of the caprices and partialities of civil rulers, or of the grants of money which governments might either withhold or bestow.

XIV. Before any plan for the improvement of mankind can be brought extensively into effect, the principle of *avarice*, as it now operates in society, *must be counteracted and subdued.*

The great object of the majority of mankind appears to be, to acquire as much wealth as possible, not for the purpose of applying it to the service of God and the good of society, but to gratify a selfish principle and an avaricious propensity—to make a splendid figure in life, to lay up portions for children, or merely to glory in the idea of having hundreds or thousands of guineas or bank notes deposited in a chest, in the stocks, or other place of security. Every one seems to think that he may use his money just as he pleases, without being responsible to a higher Power; and even many of those who call themselves *Christians*, are glaringly guilty of that "covetousness which is idolatry," although they are pointedly admonished that "the love of money is the root of all evil," and, consequently, the prevention of much good; and that "it leads into many snares and temptations, and foolish and hurtful lusts, which drown men in destruction and perdition." Nothing can be more irrational and degrading than for an immortal being to hoard up treasures which he never applies to any useful purpose, and who only feasts his imagination with the idea that he has them, to a certain amount, in his possession. Yet thousands of such characters exist even in the Christian world. What should we think of the man who took it into his head to lay up, in a large shed or garret, which was carefully locked up from public view, 5000 pair of boots, 10,000 tea-cups, 20,000 coffee-pots, or 30,000 cork-screws, with no other view than to please his fancy, and to tell the world that he had such a number of articles in his possession? We should, doubtless, consider him as an arrant fool, or even as a downright madman. And what is the difference between hoarding thousands of guineas, dollars, or bank notes, which are never brought forth for the benefit of mankind, and accumulating fifty or a hundred thousand pair of boots, spurs, or knee-buckles? How ridiculous would it appear if all that could be said of a man when he died was, that the great object of his life was to lay up in store 25,000 tea-kettles, which were never intended for cooking, and 30,000 great-coats, which were never intended to be worn? Equally foolish and contemptible is it, to lay up thousands of pounds or dollars that are never consecrated to the glory of God or the good of man. I know individuals who are worth £1000 a year, and whose annual expenditure does not amount to above £150; and I know others who are worth *ten times that* sum, who do not spend above two or *three hundreds* a year;—yet it is sometimes difficul to obtain from them a guinea, or even a few shillings, for a religious or philanthropic object; and, were you to call in question their Christianity, it would be considered as little short of an insult. *

It becomes Christian churches and ministers seriously to consider this subject, if they wish to see the principles of pure Christianity reduced to practice, and worldly maxims undermined, and if they would be instrumental in preparing the way for the universal propagation of the gospel, and the arrival of the predicted Millennium. Were it not for the prevalence of the debasing principle of avarice, we should, ere long, have seminaries of all descriptions established among us, for training both the young and the old in knowledge and virtue, and "to glory and immortality"—we should have our towns and cities cleared of every nuisance—our roads and footpaths improved—our deserts turned into fruitful fields—new towns and villages erected on spacious plans—intelligence speedily and cheaply conveyed—the physical aspect of the country beautified and adorned—and the whole frame of society transformed and remodelled, in conformity with the principles of reason and religion. Were I to enter into minute calculations on this subject, it might easily be shown, that the wealth presently possessed by civilized nations, were it properly distributed and applied, would be more than sufficient to introduce every improvement in society, physical, moral, and intellectual, of which the terrestrial state of man is susceptible—to raise

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* The late distinguished philanthropist, J. B. Wilson, Esq. of Clapham Common, was once heard to say of one who had been looked up to as a good man and Christian, "He died wickedly rich,"—evidently implying, that he thought such a man's Christianity was extremely doubtful.

the degraded mass of this world's population to intelligence and virtue—to bring into a state of cultivation almost every waste on the face of the globe—to intersect every country with canals and rail-roads—and to transform the whole earth into a paradise, scarcely inferior in beauty to that which appeared at the first creation. And those who expended their superfluous wealth in such noble achievements, so far from having any of their sensitive enjoyments diminished, would enjoy a happiness, both physical and mental, far surpassing any thing which they formerly experienced.

Recapitulation and Conclusion.

In the preceding pages I have endeavoured to illustrate a variety of topics in reference to the education and general improvement of all classes of society—particularly the physical, moral, and intellectual instruction of infants—the advantages which would result from the universal establishment of infant schools—the seminaries which require to be erected for the instruction of youth from the age of six to the age of fifteen years—the plan and arrangement of school-rooms, and the objects and apparatus with which they should be furnished—the principles on which school-books should be constructed—the modes of teaching, by which substantial knowledge and moral principle may be communicated—*the branches of knowledge which should be taught to all classes of the community*—the *rational and intellectual processes* by which a knowledge of them is to be conveyed—the moral and religious instruction of the *young*—*the* manner in which Sabbath schools should *be conducted*, and the qualifications requisite for every teacher in such institutions—the seminaries which require to be established for young persons of both sexes from the age of fifteen to the age of twenty years or upwards—the qualifications requisite for teachers of all descriptions, and the seminaries which ought to be established for their instruction—the *practicability* of establishing all such institutions—the *utility* of such improvements in education, in counteracting crime, raising the moral and intellectual character of man, and preparing the way for the approach of the millennial era—the *principles* on which national systems of education should be established—mechanics' institutions, and the improvements of which they are susceptible—with a variety of *miscellaneous hints in reference to the diffusion of knowledge and the improvement of general society.*

Were such institutions once established throughout every part of our country and of the world at large, thoroughly imbued with the spirit of Christianity, and conducted with activity and zeal—there can be little doubt that they would, ere long, be accompanied with the most interesting and beneficial results. We should soon behold ignorance, foolish prejudices, superstition, enthusiasm, bigotry, and intolerance, with all their accompanying evils, gradually evanishing from the world, as the shades of night before the rising sun. We should behold the human mind aroused from the slumber of ages, exerting its energies on objects worthy of its high dignity and destination, and conducive to the improvement and the happiness of the social state. We should behold science enlarging its boundaries, the useful and ornamental arts carried to perfection, and the universe more fully explored throughout all its departments. For we should then have a thousand experimenters, and a thousand intelligent observers of the phenomena of nature, for one that exists in the present state of intellectual debasement. New and interesting experiments would be instituted, new facts explored, new regions of the universe laid open to view, and a nobleness, a vigour, and a lofty spirit of independence, on every subject of thought, displayed by the human mind. We should behold avarice, pride, ambition, revenge, and other malignant passions, in a great measure extirpated; and a spirit of love, affection, liberality, and harmony, pervading every department of the moral world. We should behold the Christian world approaching to a harmonious union—the spirit of jealousy and dissension laid to rest—the demon of persecution chased out of the world—the truths of religion and its holy principles recognised in every department and arrangement in society—the great realities of the eternal world contemplated in their true light, and men of all ranks walking hand in hand, as brethren of the same family to the same glorious and incorruptible inheritance.

In the progress of such institutions—when they shall have been brought into full operation—I behold, in the prospect of future ages, the most important transformations, and the most glorious results, in the improvement both of the *intellectual* and of the *physical* world. I behold the surface of the earth, at no distant period, adorned with vegetable and architectural beauties and embellishments—our deserts transformed into fruitful fields—our marshes drained—our moors and heath-clad mountains adorned *with fruitful trees*—our gardens producing the fruits *of every clime*—our highways broad and spacio accompanied with cleanly footpaths, and at the distance of every half-mile furnished with seats and bowers for the shelter and refreshment of the passing traveller, and every bower furnished with Penny Magazines and other works for the instruction and amusement of every one who has leisure to peruse them—our abominable lanes and closes, the seats of physical and moral pollution, completely demolished and laid open to the light of heaven—our narrow streets expanding into spacious squares, cheered with the solar beams, and with rural prospects, and ventilated with the refreshing breeze—our densely crowded cities almost completely demolished, and new cities arising from their ruins, on noble and expansive plans, corresponding to the expansive state of the human mind.

I behold the *climates* of the earth meliorated by the hand of genius and industry—by the cutting down of forests, the draining of marshes, the improvement of sandy and rocky wastes, and the universal cultivation of the soil—the thunderbolts of heaven, wielded by the philosophic sage, and the forked lightnings, directed by the hand of art, to play in harmless coruscations in the regions of the clouds.—I behold *locomotive engines*, steam-carriages, and air-balloons, brought to perfection, transporting multitudes of human beings from one city to another, from one nation to another, and from one continent to another, with a degree of velocity which has never yet been attempted.—I behold the savage restored to the dignity of his moral and intellectual nature, no longer roaming the desert wild and uncultivated like the beasts of prey, throwing aside his warlike bows and his battle-axes, directing his faculties to the improvement of his species, and to the most sublime investigations.—I behold men of all nations and kindreds cultivating a harmonious and friendly intercourse;—the tribes of New Holland, Borneo, Sumatra, and Madagascar, visiting the British Isles with the productions of their respective climates, and holding literary and religious correspondence with the directors of our philosophical and missionary associations, on all the subjects of Christian and scientific investigation.

I behold *the scenery of the heavens* more fully explored, and new prospects opened into the distant regions of the universe—the geography of the *moon* brought to perfection, its mountains and vales thoroughly explored, and traces of the existence and operations of its inhabitants exhibited to view—the nature of comets ascertained—the causes of the various phenomena which appear on the *planets* explained—the construction of the *sun*, and the nature of his spots determined—the sublime scenes connected with the *new* and *variable* stars, *double* and *treble* stars, and the many thousands of *nebulæ* dispersed through the regions of boundless space, more fully displayed—and the Divine character and perfections appearing with still greater lustre and magnificence throughout the amplitudes of creation.

I behold the ministers of religion expatiating, amidst thousands of intelligent worshippers, on higher themes and more diversified topics than those to which they are now necessarily restricted—not confining their attention merely to first principles, and to a few fragments of the Christian system, but *taking the whole* of Divine Revelation as their text-book, and deriving their illustrations of it from the records of Providence, and from all the diversified scenes of the universe.—In fine, I behold the human soul, thus elevated and refined, and endowed with multifarious knowledge, dropping its earthly tabernacle in the dust, and, in another and a higher region of existence, contemplating the economy of other worlds, exploring the wonders of Divine Wisdom and Omnipotence throughout the immensity of creation, prying into the mysteries of human redemption, rising nearer and nearer to the Divinity, expatiating amidst objects of beauty and beneficence, and beholding new scenes of grandeur and felicity rising to view, in boundless perspective, while ages, numerous as the drops of the ocean, are rolling on.

Let none imagine that such views are either romantic or Utopian—they are the *necessary results* of what will undoubtedly take place, when knowledge and Christian principles are universally diffused. It is owing chiefly to *ignorance* and the prevalence of *malignant principles*, that science has been so slow in its progress, that contention and warfare have wasted and demoralized the nations, that the earth has been left barren and uncultivated, that savages have been permitted for ages to roam without arts and instruction, that religion has been neglected, and that so many evils, physical and moral, have been introduced into the social state. Remove the cause of existing evils, and opposite effects will be produced—effects surpassing, in benignity and grandeur, every thing which has occurred since time began. In the present age, distinguished from all the periods of time which have hitherto elapsed, these effects are *beginning* to appear. All the movements now going forward in the moral, political, scientific, and religious world, have an evident bearing on the approach of a more auspicious and enlightened era. The rapid progress of scientific discoveries, and of improvements in the arts—the numerous and *cheap* publications, on all subjects of useful knowledge, now issuing from the press, in hundreds of thousands at a time, and read by all classes of the community—the erection of public seminaries on new and improved plans, throughout different countries both of Europe and America—the establishment of philosophical institutions, missionary associations, and reading societies, in every town, and almost in every parish—the extensive circulation of newspapers, magazines, and literary and religious journals, of all descriptions—the steam-boats and carriages which have been constructed, and the numerous canals and rail-roads which have been formed, for the speedy conveyance of passengers from one place to another, in order to facilitate the intercourse of human beings—the application of machinery to the different arts and manufactures, for increasing the productions of human labour—the desire excited among all ranks, even the lowest, for rational information, and for investigating every subject connected with the happiness of the social state—the abolition of *slavery*, with all its degrading accompaniments—the reformations going forward both in Church and State—the spirit of liberty bursting forth among the nations in both hemispheres of the globe—the conversion of savage tribes to Christianity, and their advancement in knowledge and civilization,—these, *and many similar* movements, viewed in connection with the Divine declarations, that "Wars shall cease to the ends of the world," and that "the *earth shall be filled with the knowledge of Jehovah*"—plainly point to a period which is on the wing, when the light of truth shall irradiate the inhabitants of every region, and when improvements of every description shall be introduced into every department of the physical and moral world. It only remains, that, as agents under the Moral Governor of the world, we arouse ourselves from our present lethargy, and devote all our powers, and wealth, and energies, to the accomplishment of such glorious designs, resting assured, that "our labour," if conducted with wisdom and perseverance, "shall not be in vain in the Lord."

In fine, if the world is ever to be enlightened and regenerated—if the predictions of ancient prophets are to be fulfilled—if the benevolent purposes of the Almighty, in relation to our world, are to be accomplished—if war is to cease its desolating ravages, and its instruments to be transformed into ploughshares and pruning-hooks—if selfishness, avarice, injustice, oppression, slavery, and revenge, are to be extirpated from the earth—if the tribes of mankind are to be united in the bonds of affection, and righteousness, and praise spring forth before all nations—if the various ranks of society are to be brought into harmonious association, and united in the bond of universal love—if the heathen world is to be enlightened, and the Christian world cemented in one grand and harmonious union—if the landscape of the earth is to be adorned with new beauties, and the wilderness made to bud and blossom as the rose —if "the kingdoms of this world are to become the kingdoms of our Lord and his Messiah," "the whole earth filled with his glory," and his sceptre swayed over the nations throughout all succeeding ages—these long-expected events will, undoubtedly, be introduced by the universal instruction of all ranks, in every thing that has a bearing on their present happiness, and their immortal destiny. If we, therefore, refuse to lend our helping hand to the accomplishment of this great object, we virtually attempt to frustrate the purposes of the Eternal, and to prevent the present and future happiness of mankind. And while we pray to the "Great Lord of all," that he would "appear in his glory to men," and hasten the time when "his name shall be great from the rising to the setting sun," we only offer an insult to the Majesty of Heaven, while we refuse to consecrate our wealth and influence to his service, and to engage in holy activity as "workers together with God." We may legislate as we have hitherto done, for ages to come—we may make, unmake, and modify our civil laws, enforce hundreds of regulations and enactments for the punishment and prevention of crime—we may build thousands of churches and colleges, and academies without number—we may engage in profound discussions and investigations, and compass sea and land to make proselytes to our opinions; but unless the foundations of society be laid in the rational and religious education of all classes of the young, our most specious plans will prove abortive, and our superstructures gradually crumble into dust, and, "like the baseless fabric of a vision, leave scarce a wreck behind."

APPENDIX.

Page 398–9.—*Insanity from Excessive Study.*

THE following instance of the effects of excessive study, and the danger of neglecting the animal functions, is extracted from the "American Annals of Education" for September, 1833.

Mr. Joseph Frothingham, from Salem, State of Massachusetts, was a student of the Oneida Institute. In April, 1833, he was suddenly missed, and strong suspicions were entertained of his having been murdered. Nothing was heard of him, however, until a letter was recently received by his parents, dated, "Atlantic Ocean, 12th May, 1833,—500 miles east of Newfoundland Banks." The following extract from his letter will show to what account his abduction is to be charged:—"While at the Institute, having nothing else to do, and wishing to get a-head, I applied myself very closely to study, (particularly the Latin grammar,) leaving off only when absolutely necessary. You recollect I arrived during vacation, before the regular course of labour had commenced, and thinking I should have plenty of it in a few days, contented myself with taking very little exercise. The effects of this close application from sunrise till nine in the evening I soon perceived, and several times was sensible that my thoughts for a moment or two were rather wandering. Yet I did not feel at all anxious or discouraged, reasoning with myself, that so sudden a change of pursuit must necessarily cause me at first to feel rather unwell, and that after a few days my mind would recover its wonted tone. After the 5th or 6th of April, the little momentary aberrations became more frequent, and how I spent much of the time intervening between that date and the 8th, I am wholly unable to say. Some things which I did I recollect distinctly, and others only as we recall the vagaries of a dream. But after the 8th, every thing is wrapt in confusion,—'shadows, clouds, and darkness rest upon it.' I have a vague dim recollection of feeling something as if standing near a mountain, when a volcano bursts from the side. To escape the fiery deluge I travelled by sea and land, but onward it still seemed to move, and even to rear itself a wall of living fire. One only thing I can recollect clearly. Finding myself in a strange street, near a large stone building, I inquired of a soldier the name of the place, and he answered, 'Montreal.' For a moment I wondered what could have brought me there, but then came confusion over my mind again, and *not an idea or incident* can I recollect, until yesterday, about 10 a. m. when I found myself in the steerage of a ship bound from Quebec to Liverpool. I immediately communicated every thing to my fellow-passengers, (a young man and wife,) and from them learned the following particulars."

It appears that he met them accidentally and embarked with them, after making most of the necessary preparations; and, after passing through various difficulties in his way down the river, reached the ship. In consequence of the small sum of money which Mr. F. had, he was consigned to the steerage, but kindly supplied with necessaries by the captain. It was not until a week's confinement with sea-sickness (which perhaps was the very remedy which a kind Providence saw necessary) that he recovered his recollection; and then, he observes, his "mind, in an instant, was as clear and as rational as ever." The conclusion of his own letter will be more interesting than any abridgment. "The captain remarked, that he had sometimes suspected me to be a little deranged, and my fellow-passengers thought my appearance very odd at Quebec; but as I was frequently engaged, while on board, in reading their books, they concluded it was owing to 'absence of mind, and a naturally eccentric character.' They could hardly believe me, when I first made known to them my utter ignorance of every transaction since the time I met with them on the St. Lawrence. They told me I had been uniformly courteous and cheerful; and that, when we walked from the shore to a house during the storm, I carried her in my arms about half the way, she being too cold and wearied to walk. They were well wrapped up in blankets, but I had nothing but my cloak, and got two of my fingers frozen. You can better conceive than I can express, how strangely I felt when reason first told me I was in the cabin of a vessel; and when I knew, from the pitching and tossing, that that vessel was on the ocean. I am in hopes of meeting with some vessel bound homeward; and, if I cannot return in her, to send this letter. If we speak no vessel in which I can return, I shall probably take passage immediately after arriving in Liverpool. Till then, I leave all other incidents connected with this almost incredible loss of reason. I do not doubt that study was the cause, and thus are all my hopes of going through college blasted—for I should not dare to make a second attempt. But I think nothing of that. *I am lost in wonder* that such a journey should have been performed in safety in such a singular absence of mind; and to think too that I even went through all, without ever losing my money, is most strange. My preservation appears indeed miraculous—but I know not what to say. How thankful should I be to the Great Being who has guided and directed my wanderings—thankful! 'tis too tame a word. Words cannot express my feelings, and I leave all, for the contemplation almost overwhelms me."

Mr. Frothingham has since returned, and confirms the whole account. "Would that his well-meant but mistaken zeal in study (says the editor) might be the means of saving many now in danger from a result not less fatal to future plans, and of preserving others from that partial mania—that predominance of the body over mind, which we believe gives rise to not a few of the follies, and errors, and faults, of sedentary men. We will only add, as an example of a result more deadly, from a similar imprudence that one of the most diligent and promising students of an institution, returned to his room after a long tour on foot, in perfect health, and, as he imagined, with a stock laid up on which he might draw. He sat down closely to study. The blood thus accumulated, which rushed to Mr. Frothingham's *brain*, in this case burst forth in a profuse discharge from the lungs; and, after years spent in struggling, by the aid of a fine constitution, against the diseases and the effects of study, he fell in the midst of the brightest prospects of usefulness, a victim to his hasty efforts to be a scholar. Would not a thorough knowledge of physiology preserve both sexes from incalculable evil?"

The very singular case of Mr. Frothingham, described above, suggests, both to the philosopher and the divine, a variety of interesting reflections in reference to the action of mind on the corporeal functions, and to the goodness and care of a superintending Providence. He must have travelled more than two hundred miles by land and water, before he found himself in Montreal; and, as he could not be supposed to have taken the nearest road to that city, perhaps he may have travelled more than double that distance, and crossed several lakes and rivers which abound in the territory through which he passed. He must have inquired for lodgings, paid for victuals, found out the different ferries where he behoved to cross, and all without being conscious where he was, or what was his object. With regard to the effect of study on the functions of the body and mind, I have every reason to believe, that those studies which are most abstruse, such as, the ancient languages, metaphysics, and the higher branches of pure mathematics, when closely pursued, have the greatest tendency to injure the organic functions, and the mental powers; while natural and civil history, geography, astronomy, and the other physical sciences, being conversant about *sensible objects*, will seldom produce such effects, when prosecuted with judgment and moderation; so that those studies which are in reality most useful, will be found in few instances injurious either to the animal or mental powers. Mr. Frothingham was deeply absorbed in the study of Latin grammar, when his mental aberration was induced. Were he to refrain from such abstract studies, and apply himself with moderation to the more interesting departments of natural science, I should have no fear of the return of his former insanity.

FINIS.

Printed by W. Collins & Co.
Glasgow.